

## Revision of West-European Genera of the Tribe Aylacini Ashmead (Hymenoptera, Cynipidae)

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Abstract.—The west European genera of Aylacini Ashmead (Hym., Cynipidae) and the genus *Antistrophus* Walsh from North America are reviewed. Diagnoses of all the genera are presented and an illustrated key for the identification of the genera is provided. Four genera are described as new: *Barbotinia* gen. n., *Hedickiana* gen. n., *Iraella* gen. n. and *Neaylax* gen. n. The genus *Timaspis* Mayr is resurrected and the following synonymies are proposed: *Aylacopsis* Hedickie 1923 = *Timaspis* Mayr 1881; *Weldiella* Ionescu and Roman 1962 = *Cecconia* Kieffer 1902 and *Endocaulonia* Ionescu and Roman 1960 = *Panteliella* Kieffer 1902. Five species are redescribed and figured and lectotypes for six species are designated. Nine new combinations are proposed as well as new synonymies for three species. A check list of the west European species of Aylacini is presented.

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### INTRODUCTION

The Cynipidae or gall wasps is one of the better known families of Cynipoidea. It is estimated that there are around 1,800 species distributed mainly in temperate areas of the northern hemisphere (Dalla Torre and Kieffer 1910, Nordlander 1984). More than 250 species have been recorded in Europe (Nieves-Aldrey 1987). Galls of this group of parasitic wasps are counted among the most specialized and morphologically complex of all zooecidia. About 75% of all known cynipids are gall inducers associated with Fagaceae, almost exclusively with *Quercus*; another large group is associated with Rosaceae and Asteraceae, while a few species are linked to Lamiaceae, Papaveraceae, Valerianaceae, Aceraceae, Fabaceae, and Apiaceae.

With regard to the higher classification of the Cynipidae, the family is divided here into six tribes, on the basis of the five tribes proposed by Ashmead (1903); see also Kinsey (1920). All the tribes but one, viz Eschatocerini, are present in west-Europe. Eschatocerini is only represented by the Neotropical *Eschatocerus* Mayr, gall maker on species of *Acacia* and *Prosopis*. This genus presents an axilla large, triangular and situated in the same plane as scutellum; scutellar foveae and notauli absent and reduced wing venation; all of them very distinctive apomorphic morphological fea-

tures, supporting its monophyly. Pediaspidini includes only one genus of palaeartic distribution: *Pediaspis*, Tischbein gall maker on *Acer* (Aceraceae). Some authors (Weld 1952, Weidner 1968, Askew 1984) include this genus within the Aylacini but since it exhibits a specialized scutellar morphology and has a heterogenic life-cycle, it is better placed in a separate tribe. Rhoditini is composed of two genera: *Diplolepis* Fourcroy and *Liebelia* Kieffer (Ronquist, "in press") which induce galls on *Rosa* (Rosaceae). Cynipini comprises of oak gall inducers and they are associated exclusively with Fagaceae, mainly *Quercus*. The inquiline group is composed of genera which do not produce galls, living as inquilines in the galls of other Cynipidae. Some authors, especially in North America, have given subfamily status to this group (Ashmead 1903, Burks 1979); more frequently it has been included together with the gall inducers in a large group without subdivisions (Weld 1952, Eady and Quinlan 1963). Here it is regarded as a tribe.

Recent studies on phylogenetic relationships within Cynipidae (Ritchie 1984, Ronquist in press) support the monophyly of Synergini as well as that of Cynipini and Rhoditini. On the other hand, Aylacini appears to be based on symplesiomorphy and would be an unnatural paraphyletic group. Nevertheless, for historical reasons and considering biological characters, I prefer to treat them here as a tribe.

## KEY TO THE TRIBES OF CYNIPIDAE

- 1 Pronotum dorsally longer, in median dorsal line at least one-sixth, usually one-third as long as greatest length on outer lateral margin, and frequently with truncation and pits forming pronotal plate (Figs. 1, 2); projection of ventral spine of gaster of female always short. Species usually fully alate, except male of *Phanacis centaureae* and some forms of *Synergus thaumacerus*, which are brachypterous ..... 2
- Pronotum dorsally very short, in medial dorsal line one-seventh or less as long as outer lateral margin, and without truncation or pits (Fig. 3); projection of ventral spine of gaster of female usually longer than broad, viewed laterally. Agamic forms of some species apterous ..... 4
- 2 Scutellum dorsally flat and trapezoidal with a large, heart-shaped impression on the disk; scutellar foveae absent (Fig. 4). One species with heterogonic life cycle, associated with Aceraceae (*Acer* spp) ..... **Pediaspidini**
- Scutellum oval or rounded, always dorsally convex; scutellar foveae usually present, sometimes reduced to an arched depression. Inquilines or gall makers associated with plants other than *Acer* ..... 3
- 3 Gula (Fig. 5) reduced to a long, narrow median strip; gular sulci united well before reaching hypostomata; metasomal tergites 2+3 (third and fourth abdominal terga) (Fig. 8) fused, at least in the female, into one large segment occupying nearly the whole of the gaster in the female; if showing only a false suture in either sex (Fig. 6), then the face usually has two vertical and parallel carinae (Fig. 7); face and thorax sculptured, sometimes very lightly, but never smooth and shining; Maxillary palps with 5 palpomeres with 1 and 2 fused. Inquilines in galls of *Quercus* and *Rosa* ..... **Synergini**
- Gular sulci (Fig. 9) usually free or meeting near the hypostomata; metasomal tergites 2-7 (Fig. 10) free in most cases; if metasomal tergites 2+3 fused in the female into one large segment then head and thorax almost smooth and shining; pits of pronotum usually present and sometimes associated with a light pronotal plate; maxillary palps 5-segmented. Gall makers on plants other than *Quercus*, *Rosa*, and *Acer* ..... **Aylacini**
- 4 Axilla large, triangular and situated in the same plane as scutellum; scutellar foveae (Fig. 11) absent; notauli absent; wing venation (Fig. 12) reduced; Rs+M and R1 not visible; radial cell of forewing with radius quite separate from anterior margin of wing; frons (Fig. 13) with a strong medial keel. One genus from South America, gall maker on *Acacia* ..... **Eschatocerini**
- Axilla much smaller; not situated at the same level as the scutellum; scutellar foveae present or forming a shallow arcuate transverse depression; (Rs+M) of fore wing present and Rs reaching or almost reaching to anterior margin of wing; frons without medial keel or with a much weaker keel ..... 5
- 5 Mesopleuron (Fig. 14) with longitudinal furrow; hypopygium of female (Fig. 15) ploughshare-shaped; radial cell of wing usually closed anteriorly. Gall makers on *Rosa* ..... **Rhoditini**
- Mesopleuron without longitudinal furrow; hypopygium of female never shaped as above; radial cell open anteriorly. Gall makers on *Quercus*, *Castanea* and *Lithocarpus* ..... **Cynipini**

The tribe Aylacini comprises a group of primitive genera of cynipid gall-inducers associated mainly with herbaceous plants. Most of their representatives are linked with species of Asteraceae producing milky juice, but some genera and species are associated with Papaveraceae, Lamiaceae, Valerianaceae and Apiaceae. Galls of the species of this tribe are not complex; they are produced mainly in twigs or fruits and are not detachable from the host plant tissues. The life cycles are uni- or bivoltine but without heterogony or alternation of generations (Folliot 1964, Askew 1984). There is no previous full revision of the genera of this tribe. Some partial revision of genera included in Aylacini were made by Weld (1952), Eady and Quinlan

(1963), Quinlan (1968) and Kovalev (1982), but as far as I know no entire revision of the group has been accomplished.

The group appears to be particularly abundant and species-rich in the far east of Europe where many taxa have been described recently (Zerova et al. 1988) (see also Belizin 1959). Unfortunately I have failed to obtain type material of these taxa to be included in this revision.

## MATERIAL AND METHODS

This study is supported by the examination of the types of almost all the genera represented in western Europe. The initial purpose was to in-

clude all the genera described from the western Palaearctic region but since I failed to borrow the type material of some genera from eastern Europe, mainly Russia, Ukraine and Rumania, the work was finally restricted to west-Europe. It was also necessary, in order to clarify the taxonomic status and relationships of some genera, to examine some Nearctic material. These were: *Antistrophus*, *Gillettea* and the type species of *Aulacidea* Ashmead. Type species of genera of Aylacini are cited according to Rohwer and Fagan (1917). The list of collections from which material have been examined for this study is as follows:

MCNM	Museo Nacional de Ciencias Naturales, Madrid, Spain
MNHP	Museum National d'Histoire Naturelle, Paris, France (Mme Casevitz-Weulersse)
MZLU	Museum of Zoology and Entomology Lund University, Lund, Sweden (R. Danielsson)
NHML	The Natural History Museum (British Museum), London, England (N. Fergusson)
NHMW	Naturhistorisches Museum, Vienna, Austria (M. Fischer)
USNM	National Museum of Natural History, Smithsonian Institution, Washington, DC, USA (A. Menke)
ZMHB	Zoologisches Museum, Humboldt-Universitat, Berlin, Germany (F. Koch)
ZMH	Zoologisches Museum Hamburg, Hamburg, Germany (R. Abraham)
ZSBS	Zoologische Sammlungen des Bayerischen Staates, Munich, Germany (E. Diller)

#### MORPHOLOGICAL TERMS

The terminology mostly follows that used by Eady and Quinlan (1963), Ritchie (1984) and Ronquist and Nordlander (1989). The term "thorax" as used here includes the propodeum and thus is an equivalent to the "mesosoma" of the mainly American literature. Measurements and abbreviations used here are as follows: A3 and A4, third and fourth antennomeres; POL (post-ocellar distance) is the distance between the inner margins of the posterior ocelli; OOL (ocell-ocular distance) is the distance from the outer edge of a posterior ocellus to the inner margin of the compound eye; *transfacial line* is the shortest distance across the face between the antennal sockets. Abbreviations of forewing venation are used as Eady and Quinlan (1963). Supraclypeal area is the medial area between the clypeus and the antennal sockets. Length and width of the radial cell of the forewing are measured following Wiebes-Rijks (1979).

#### AYLACINI (Ashmead 1903)

Aulacini Ashmead 1903:147

Aylaxini (Ashmead): Quinlan 1968:275

Aylacinae (Ashmead): Kovalev 1982:85

Aulacideini (=Aylaxini) Fergusson 1988:143

Type genus: *Aylax* Hartig 1840 (= *Aulax* Hartig, 1843 (unjustified emendation)). orig. desig.

Insects of relatively small size; 1-5 mm. Coloration usually black, brown or red-brown. Head viewed dorsally transverse; usually two times broader than long; in frontal view usually slightly broader than high or as broad as high; temples not expanded behind the eyes; ocelli small; face with radiating striae from clypeus to antennal sockets weak to moderately developed, medially usually absent; subocular sulcus absent. Frons and vertex usually with dull sculpture, coriaceous, alutaceous or reticulate; rarely smooth and shining; frontal carina not present; supraclypeal area raised or slightly protuberant; antenna filiform with 12 to 14 antennomeres in females, 13 to 15 in males. Pronotum dorsally long; in median dorsal line one-sixth at least, usually one-third as long as greatest length on outer lateral margin, frequently with truncation and submedial pits forming a light pronotal plate; sides of pronotum usually pubescent; mesoscutum usually with coriaceous, alutaceous or reticulate sculpture, less frequently transversally rugulose or almost smooth; notauli complete to almost absent; median mesoscutal impression, if present, usually impressed only in posterior third or less of mesoscutum; scutellar foveae usually present, sometimes confluent and not well defined posteriorly; mesopleuron usually longitudinally striated, reticulate or rugose-reticulate. Wings well developed except the brachypterous males of *Phanacis centaureae* Förster; radial cell of forewing open or closed in the margin. Abdominal tergites 3 to 7 free; third abdominal tergum covering 1/3 to 1/8 of the whole length of gaster, laterally with or without a pubescent patch; tergites with or without punctures. Ventral spine of hypopygium very short. Tarsal claws simple, rarely with acute basal lobe or tooth.

KEY TO WEST-PALAEARCTIC GENERA OF AYLACINI  
(INCLUDING NEARCTIC GENUS *ANTISTROPHUS* WALSH)

- 1 All claws with distinct basal lobe or tooth (Figs. 16, 18). Mesopleuron, mesoscutum and vertex smooth and shining. Associated exclusively with *Rubus* and *Potentilla* (Rosaceae) ..... 2
- All claws simple (Figs. 19, 20). Mesoscutum and vertex rather dull, sculptured, striate or reticulate; mesopleuron striate or reticulate. Genera not associated with Rosaceae ..... 3
- 2 Claws weakly lobed (Figs. 17, 18). Subcosta and radius reaching to anterior margin of wing; radial cell sometimes partly closed anteriorly (Fig. 21). Third and fourth abdominal terga completely fused in females, separated in males. Gall-maker on *Potentilla* ..... *Xestophanes* Foerster
- Claws strongly lobed (Fig. 16). Subcosta and radius not reaching to anterior margin of wing (Fig. 22); radial cell open anteriorly. Third and fourth abdominal terga completely free in both sexes. One genus associated with *Rubus* and *Potentilla* ..... *Diastrophus* Hartig
- 3 Mesopleuron longitudinally striated. Pronotum always with two distinct submedial pits ..... 7
- Mesopleuron reticulate (Figs. 24, 28, 41), rugulose-reticulate (Fig. 116) or rugulose-striate. Pronotum with or without submedial pits ..... 4
- 4 R1 and Rs not quite reaching to anterior margin of wing (Fig. 42); wing fringe absent (Fig. 42). Third antennal segment shorter than fourth (Fig. 37) ..... *Antistrophus* Walsh
- R1 and Rs reaching to anterior margin of wing and hair fringe distinct, usually long. Third antennal segment as long as or longer than fourth ..... 5
- 5 Pronotum (Fig. 23) with two distinct submedial pits. Pronotum, mesoscutum and mesopleuron strongly reticulate (Fig. 24). Radial cell (Fig. 25) clearly open anteriorly. Radiating striae on face absent (Fig. 26). Third antennal segment as long as fourth (Fig. 27). Gall-maker on *Papaver somniferum* L. .... *Iraella* gen. n.
- Pronotum usually without submedial pits, rarely with two rather small and indistinct pits. Mesopleuron reticulate or rugulose-reticulate. Radial cell usually closed, at least partially. Radiating striae on face present, sometimes weak or faint. Third antennal segment longer than fourth ..... 6
- 6 Mesopleuron reticulate (Fig. 28). Notauli usually faint or absent anteriorly. Gall inducer on Asteraceae .. *Phanacis* Foerster
- Mesopleuron rugulose-reticulate (Fig. 116) or rugulose-striated. Notauli complete. Gall inducer on Asteraceae ..... *Timaspis* Mayr
- 7 Head, in frontal view, as high as broad, slightly higher than broad in male (Fig. 29); malar space at least as long as the height of an eye in the female, longer in male. Scutellar foveae shallow and indistinct. Hair fringe on apical margin of forewing long (Fig. 30). Gall-maker on *Valerianella* (Valerianaceae) ..... *Cecconia* Kieffer
- Head in frontal view broader than high (Figs. 44, 57); malar space usually shorter than height of an eye. Scutellar foveae distinct. Wing fringe on apical margin, if present, usually not as long ..... 8
- 8 R1 and Rs of forewing not quite reaching to anterior margin of wing; radial cell clearly open at base and along margin (Figs. 62, 79, 110) ..... 9
- Rs almost reaching to anterior margin of wing and R1 continuing more or less along margin of wing (sometimes R1 only touching the margin); radial cell closed, partially closed or obsoletely closed (Figs. 34, 50, 55, 103) ..... 12
- 9 Pronotum shorter medially (Fig. 60). Mesopleuron (Fig. 62) striate with some reticulation between striae. Third abdominal tergum without lateral pubescent patch. Gall maker on *Papaver* (Papaveraceae) ..... *Barbotinia* gen. n.
- Pronotum longer medially (Figs. 75, 107). Mesopleuron (Fig. 77) finely or strongly striate. Third abdominal tergum usually with lateral pubescent patch ..... 10
- 10 Pronotum longitudinally striate and strongly pubescent (Fig. 31). Mesoscutum finely reticulate (Fig. 32). Third female antennal segment longer than fourth (Fig. 33). Third abdominal tergum with a distinct lateral pubescent patch (Fig. 31). Hair fringe on margin of forewing moderately long. Associated with *Glechoma* (= *Nepeta*) (Papaveraceae) ..... *Liposthenus* Förster
- Pronotum without longitudinal striae (Fig. 77), coriaceous or reticulate, only moderately pubescent. Mesoscutum coriaceous or rugulose-coriaceous. Third female antennal segment shorter than fourth (Fig. 73). Third abdominal tergum with or without lateral pubescent patch. Hair fringe on margin of forewing absent or very short ..... 11

- 11 Hair fringe on wing margin completely absent (Fig. 110). Mesoscutum coriaceous, with scattered piliferous punctures (Fig. 108); notauli distinct only in posterior half of mesoscutum. Gaster laterally smooth, without punctures (Fig. 109). Gall inducer on *Phlomis* (Lamiaceae) ..... *Rhodus* Quinlan
- Hair fringe on wing margin very short or absent. Mesoscutum without punctures (Fig. 76). Notauli almost complete. Fourth to seventh abdominal tergites finely punctate (Fig. 78). Associated with *Centaurea* (Asteraceae) ..... *Isocolus* Foerster
- 12 R1 of forewing continuing along margin of wing almost completely closing radial cell; sometimes vein is very lightly pigmented on the margin and radial cell appears obsoletely closed (Figs. 50, 55, 69). Pronotum always dorsally quite long ..... 13
- R1 usually not continuing along margin of wing, occasionally slightly so; radial cell appearing open, at least anteriorly (Figs. 34, 103) ..... 14
- 13 Mesopleuron clearly striate (Figs. 49, 54). Third abdominal tergum with lateral pubescent patch. Antenna of female 13-segmented. Notauli usually complete. Hair fringe on margin of forewing moderately long. Associated with Asteraceae and Lamiaceae ..... *Aulacidea* Ashmead
- Mesopleuron not clearly striate (Fig. 68), with some striae on alutaceous sculpture. Third abdominal tergum without lateral pubescent patch (Fig. 70). Antenna of female 12-segmented (Fig. 65). Hair fringe on margin of forewing absent (Fig. 69). Gall inducer on *Salvia* (Lamiaceae) ..... *Hedickiana* gen. n.
- 14 Notauli weak or obsolete even in posterior half of mesoscutum. Third abdominal tergum without lateral pubescent patch. Gall maker on *Phlomis* (Lamiaceae) ..... *Panteliella* Kieffer
- Notauli clearly impressed, at least in posterior half of mesoscutum. Third abdominal tergum with or without lateral pubescent patch ..... 15
- 15 Pronotum dorsally relatively short and pits narrowly separated, more strongly transverse (Fig. 1). Scutellar foveae smaller, sculptured. Female antenna 13-segmented. R1 partially closing the radial cell (Fig. 34). Gall maker on *Papaver* (Papaveraceae) ..... *Aylax* Hartig
- Pronotum dorsally longer and pits rounder and more broadly separated (Fig. 100). Scutellar foveae larger, rounded and smooth (Fig. 101). Female antenna 12-13 segmented. R1 not partially closing the radial cell (Fig. 103). Associated with *Salvia* (Lamiaceae) ..... *Neaylax* gen. n.

### ANTISTROPHUS Walsh

*Antistrophus* Walsh 1869:74. Type species: *Antistrophus ligodesmiae-pisum* Walsh. Monotypic (examined)

*Asclepiadiphila* Ashmead 1897b:263. Type species: *Asclepiadiphila stephanotidis* Ashmead. Monotypic.

*Diagnosis*.—Head, viewed dorsally two times broader than long; viewed frontally, slightly broader than high; temples slightly expanded behind the eyes. Frons and vertex strongly reticulate; radiating striae present; supraclypeal area reticulate, slightly protuberant; antenna 13-14 segmented in female, 14-segmented in male; A3 clearly shorter than A4. Pronotum strongly reticulate, in dorsal view, long; submedial pits conspicuous. Mesoscutum reticulate; notauli slightly faint anteriorly; median mesoscutal impression weakly impressed posteriorly; scutellar foveae large, rounded, confluent; scutellum strongly reticulate; mesopleuron reticulate. Wings hyaline; R1 not quite reaching the margin of wing; radial cell open, nearly three times as long as broad, without hair fringe on distal margin. Third abdominal tergum without lateral pubescent patch; follow-

ing tergites not punctate.

*Comments*.—The structure of the antenna, pronotum and radial cell relate it to the European genus *Isocolus*, but it differs from *Isocolus* in the strongly reticulate sculpture of the mesopleuron and mesoscutum. This feature relates it to *Phanacis* but it differs from that genus in important traits such as the presence of submedial pits in the pronotum, scutellar foveae distinct, third antennal segment shorter than fourth, radial cell open, and hair fringe on distal margin of forewing absent.

*Distribution and Biology*.—*Antistrophus*, in spite of being cited in Weld (1952) as a genus confined to North America, is mentioned in the generic keys of the same work as also present in Greece, galling plants of *Salvia* (Lamiaceae). Later on, Quinlan (1968) reiterates, without questioning it, the record. But the truth is that there is no correct distribution record of this species for that country, therefore Quinlan's citation is quite clearly erroneous and the occurrence of the genus in Europe quite unlikely. All data suggest that it is a genus of exclusively Nearctic distribution.

The genus comprises nearly 10 species in North America, associated with species of *Silphium* and *Chrysothamnus* (Asteraceae), in the stems of which they produce galls.

#### REVISED SPECIES

##### *Antistrophus pisum* Ashmead

*Antistrophus pisum* Ashmead 1885:294  
*Antistrophus ligodesmia-pisum* Walsh 1869:74 (invalid name).  
*Asclepiadiphila stephanotidis* Ashmead 1897b:263

*Examined material*.—Walsh's type series of *A. pisum* in the USNM consists of 34 syntypes: 11 ♂, 23 ♀, part of them mounted on micro-pins and part on cards. 4 ♀, with red labels printed "Type No 1523 U.S.N.M." and white handwritten "*Antistrophus pisum* Walsh"; the female in better condition, only missing the last segments of the right antenna, is designated lectotype; 7 ♂, glued on a single card, with labels number 208, red "Type No 1523 USNM"; white "*Lygodesmia* gall", are designated paralectotypes. The type series of *A. stephanotidis* Ashmead comprises 4 ♂ and 7 ♀; 1 ♀, set on card point, with labels: white "4780 4-0-91" and red "Type No 3737 USNM", is designated lectotype.

*Redescription*.—FEMALE. (Figs. 35-42). Length 3 mm. Yellow-red or amber with darkened parts mainly in vertex, mesoscutum, scutellum and upper part of gaster; antenna and legs concolorous with the body. Head scarcely pubescent and strongly reticulate, viewed dorsally (Fig. 35) two times broader than long, viewed frontally (Fig. 36) 1.1 times broader than high. POL slightly shorter than OOL and about three times greatest diameter of lateral ocellus; transfacial line around 2.4 times height of eye; temples moderately expanded behind eyes; malar space 1.2 times height of eye; face laterally with radiating striae; supraclypeal area reticulate, only slightly prominent; antenna (Fig. 37) relatively long, slightly shorter than body, filiform, with 13-14 antennomeres; if only 13, then top segment is very long; third segment clearly shorter than fourth, slightly excavated in middle. Pronotum (Fig. 39) reticulate and pubescent; dorsally long, with distinct submedial pits associated to clearly visible pronotal plate; mesoscutum (Fig. 40) strongly reticulate; notauli faint in anterior third; moderately convergent posteriorly; median mesoscutal impression indistinct, weakly im-

pressed in posterior fourth of mesoscutum; scutellar foveae large, confluent, rounded; scutellum rounded, strongly reticulate; mesopleuron (Fig. 41) reticulate; propodeum reticulate and laterally pubescent; propodeal carinae slightly divergent. Wings hyaline with pale venation; R1 and Rs of forewing not quite extending to wing margin, radial cell open (Fig. 42); Rs rather curved; length of the radial cell about 2.8 times the width; areolet indistinct; cubitalis (Rs + M) joining the basalis (Rs+M) at a point close to junction of basalis with Cu<sub>1</sub>; fore-wing without distinct hair fringe on wing margins. Gaster, viewed laterally, slightly longer than head + thorax; third abdominal tergum (Fig. 41) basally smooth without sculpture or pubescence, following segments not punctate nor pubescent; ventral spine of hypopygium very short. MALE. differs from female in darker coloration, mainly rufo-brown; antenna longer (Fig. 38), with 14 antennomeres.

##### AULACIDEA Ashmead

*Aulacidea* Ashmead 1897a:68. Type species: *Aulax mulgeducola* Ashmead (= *Aulax harringtoni* Ashmead 1877) Original designation

*Diagnosis*.—Head, viewed dorsally, about two times broader than long; viewed frontally slightly broader than high; temples not expanded or slightly expanded behind eyes; Frons and vertex coriaceous; radiating striae present laterally on face; supraclypeal area raised, coriaceous; antenna 13-segmented in female, 14-segmented in male, A3 slightly shorter than A4. Pronotum long dorsally and submedial pits present, broadly separated; mesoscutum coriaceous, granulate or finely rugulose; notauli usually complete; median mesoscutal impression usually present posteriorly; scutellar foveae distinct, usually large and rounded; mesopleuron longitudinally striated. Radial cell of forewing entirely closed on margin; hair fringe present, moderately long. Third abdominal tergum, in females, with lateral pubescent patch; following tergites usually punctate.

*Comments*.—Morphologically, the genus is well distinguished by its closed radial cell and striate mesopleuron. The type species was described from North America and is redescribed below.

*Distribution and Biology*.—Genus of holarctic distribution. The genus is represented in West-

Europe by 12 species. Most of European species induce galls on stems and leaves of species of Asteraceae specially on *Hieracium*; one species produce galls in achenes of *Nepeta* (Lamiaceae).

### *Aulacidea harringtoni* (Ashmead)

*Aulax harringtoni* Ashmead 1887:146

*Aulax mulgediicola* Ashmead 1896:133 (examined)

*Type material*.—Series composed of 75 specimens, individually set on card points. 1 ♀, with labels: red printed "Type No 3092 USNM"; white handwritten "*Aulax mulgediicola*", is designated lectotype.

*Redescription*.—FEMALE. Figs. 43-50. Length: 2.4 mm. Reddish yellow or orange, darker on dorsum; antenna and legs entirely yellow. Head, in dorsal view (Fig. 43), a little less than two times broader than long; in frontal view (Fig. 44) 1.2 times broader than high; POL: OOL as 10:9; OOL slightly more than three times greatest diameter of lateral ocellus; transfacial line about 1.4 times height of eye; temples slightly expanded behind eyes; frons and vertex finely coriaceous; face laterally with incomplete radiating striae; supraclypeal area not prominent; antenna (Fig. 45) filiform with 13 antennomeres, third segment shorter than fourth. Pronotum (Fig. 47) coriaceous and scarcely pubescent; dorsally long, with distinct submedial pits broadly separated; mesoscutum (Fig. 48) finely rugulose or granulate; notauli complete; median mesoscutal impression visible in posterior 1/3 of mesoscutum; scutellar foveae ovate, well defined, separated by a septum relatively broad posteriorly; scutellum weakly rugose; mesopleuron (Fig. 49) finely striated longitudinally. Wings hyaline; radial cell of forewing (Fig. 50) closed on the margin; length of the radial cell about 2.4 times width; areolet indistinct; hair fringe on wing apical margin distinct. Gaster (Fig. 49), viewed laterally, as long as head + thorax; third abdominal tergum basally with lateral pubescent patch, following segments finely punctate; ventral spine of hypopygium very short. MALE. Differs from female in antenna (Fig. 46), with 14 antennomeres.

*Comments*.—The morphological features of the type species are congruent with those exhibited by the species represented in Europe.

*Distribution and Biology*.—Nearctic. The species makes galls in stems of *Lactuca spp*, mainly *L. villosa* (Burks, 1979).

## SPECIES FROM WESTERN EUROPE

The species of this genus recorded in Western Europe are listed in the check list (see Appendix). The novelties are represented by some species described by Thomson which are considered either good species or represent new synonymies (Nieves-Aldrey, in press). The following are other new combinations or redescrptions of poorly known species:

### *Aulacidea kernerii* (Wachtl) comb. n.

*Aylax kernerii* Wachtl 1891:277

*Examined material*.—I have been not able to examine the type material of this species. Observations come from specimens reared from galls on *Nepeta spp* collected in Spain.

The following characters advise the transfer of this species to the genus *Aulacidea* Ashmead: pronotum relatively long dorsally (Fig. 52); 13-segmented antenna, with A3 slightly shorter than A4 (Fig. 51); mesoscutum with complete notauli (Fig. 53); longitudinally striated mesopleuron (Fig. 54); closed radial cell, although R1 is slightly pigmented on margin (Fig. 55).

### *Aulacidea scorzonerae* (Giraud)

*Aulax scorzonerae* Giraud 1859:370

*Aulacidea scorzonerae* (Giraud): Kieffer 1902:96

*Examined material*.—The type material, sent by the MNHP, comprises 66 specimens set on micropins isolated or in pairs. Most specimens are complete and in good condition. All the specimens carry a white label "Museum Paris, coll. Giraud" and some carry labels handwritten by Giraud. 1 ♂, complete, set next to a male, is hereby designated lectotype.

*Redescription*.—FEMALE. Figs. 88-95. Length: 2 mm. Coloration variable, from almost entirely red-brown with darker thorax, antenna orange or dark-yellow and legs entirely red-yellow except coxae and base of femora darkened to dark-brown or black with legs darker too. Head scarcely pubescent and finely coriaceous; viewed dorsally (Fig. 88) two times broader than long; viewed frontally (Fig. 89) 1.2 times broader than high. POL: OOL as 10:7; OOL about 3.5 times the greatest diameter of lateral ocellus; transfacial line around 1.8 times

height of eye; temples not expanded behind eyes; face laterally with incomplete radiating striae; supraclypeal area only slightly prominent; Antenna (Fig. 90) filiform, relatively short, about 0.6 times length of the body; with 13 antennomeres, A3 clearly longer than A4. Thorax scarcely pubescent; pronotum (Fig. 91) dorsally long; submedial pits clearly visible, slightly transverse; pronotum with coriaceous sculpture; mesoscutum (Fig. 92) finely coriaceous-alutaceous sculptured; notauli faint anteriorly, posteriorly not broad; median mesoscutal impression weakly impressed in posterior 1/6 of mesoscutum; scutellar foveae shallow, shining and almost smooth, ovate, separated by septum broader posteriorly; scutellum rounded with coriaceous-alutaceous sculpture; mesopleuron (Fig. 93) with fine longitudinal striae; propodeum with subparallel lateral carinae; median area scarcely pubescent, almost smooth. Forewings slightly longer than body, hyaline; radial cell (Fig. 94) closed on front margin, about 2.3 times longer than broad; hair fringe relatively short; areolet inconspicuous. Gaster as long as head+thorax; third abdominal tergum with a slight lateral pubescent patch (Fig. 93); following tergites without visible punctures; ventral spine of hypopygium quite short. Tarsal claws simple.

MALE. Differs from female in 14-segmented antenna (Fig. 95), A3 slightly broadened apically.

*Comments.*—The species had been very seldom recorded and, consequently, was poorly known having been incompletely described. After examination, I confirm that it belongs to *Aulacidea*. It is a species which is closely related to *A. tragopogonis* Thomson, from which it differs in host plant as well as in its incomplete notauli, less pronounced scutellar foveae, relatively shorter radial cell and invisible gastral punctuation.

*Distribution and Biology.*—Only recorded from Austria and Hungary. Reared from galls in the stems of *Scorzonera austriaca* Willd and *S. humilis* L.

#### AYLAX Hartig

*Aylax* Hartig 1840(1839):186, 195. Type species: *Cynips rhoeadis* Bouche. Desig. by Ashmead 1903 (not seen)  
*Aulax* Hartig 1843:412. Emendation.

*Diagnosis.*—Head, viewed dorsally, about two times as broad as long; viewed frontally slightly broader than high; temples not or slightly expanded behind eyes; radiating striae present later-

ally on face; supraclypeal area slightly prominent; antenna of female with 13 antennomeres; A3 as long as A4; antenna of male with 14 segments. Pronotum relatively short dorsally and submedial pits strongly transverse and slightly separated; mesoscutum coriaceous-granulate; notauli complete or faint anteriorly; median mesoscutal impression present in posterior 1/2 or more of mesoscutum; scutellar foveae small, slightly transverse and confluent; mesopleuron longitudinally striated. Radial cell of forewing only partially or obsoletely closed on the margin; R1 reaching to anterior margin of wing; hair fringe present, moderately long. Third abdominal tergum of females with lateral pubescent patch; following tergites without punctures.

*Comments.*—The genus was originally very heterogeneous. Later on, some species were set apart and transferred to such new genera as *Aulacidea* Ashmead and *Isocolus* Förster. My present conception of the genus is very restricted and I limit it to the species which are gall makers on seed capsules of *Papaver* and maybe also of *Hypecoum*.

*Distribution and Biology.*—The genus is represented in Europe by two species: *A. papaveris* (Perris 1839) and *A. minor* Hartig 1840. *Aylax hipecoi* Trotter 1912, described from Northern Africa (Tripoli), with galls in *Hypecoum* fruits, also found in Greece and Algeria, could also be assigned to this genus. However, the species has not been recorded again and I am ignorant as to the location of the types, so I have not been able to study the species.

#### BARBOTINIA gen. n.

Figs. 56-62

*Type species.*—*Aylax oranensis* Barbotin 1964:152. Herein designated. Derivation: Feminine gender. Dedicated to the French cynipidologist Mr. Barbotin, discoverer of the type species.

*Description.*—Head transverse; viewed dorsally (Fig. 56) more than two times as broad as long; temples not expanded behind eyes; viewed frontally (Fig. 57) trapezoid-shaped; transfacial line almost two times height of eye; malar space longer than height of eye; radiating striae on face strong, complete, laterally reaching the antennal sockets, medially absent; face without subocular sulcus; mandibles large; frons and vertex minutely alutaceous; antenna filiform, females with 14 antennomeres (Fig. 58), male with 15 antennomeres



(Fig. 59); pedicel as long as broad; A3 as long as A4. Pronotum (Fig. 60) dorsally relatively short; in median dorsal line, not more than 1/4 as long as greatest length on outer lateral margin; submedial pits clearly visible slightly transverse and moderately separated; mesoscutum (Fig. 61) granulate-punctate but punctures very obsolete or indistinct; notauli complete; median mesoscutal impression impressed in about the posterior half of mesoscutum; scutellar foveae large, rounded, contiguous, shining and almost smooth; scutellum granulate-rugulose; mesopleuron (Fig. 62) irregularly longitudinally striated but some reticulation present between the striae. Wings hyaline;  $R_1$  not quite reaching the margin and radial cell of forewing open (Fig. 62); distal wing margins with short hair fringe. Gaster as long as head+thorax; third abdominal tergum covering about 1/3 of the gaster, basally smooth without punctures or pubescence; ventral spine of hypopygium short. Legs with simple tarsal claws.

*Comments.*—The proposed genus is closely related to *Aylax* Htg. these two genera having in common a pronotum which is relatively short medially and submedial pits which are transverse and scarcely separated. However, *Barbotinia* differs from *Aylax* in that the head has a trapezoidal shape with a relatively long malar space in relation to the height of an eye; the conformation of the scutellar foveae, very large and rounded; the striate-reticulated sculpture of the mesopleuron; the radial cell of the forewing completely open on the margin, with the  $R_1$  vein hardly reaching the wing margin and the absence of a lateral pubescent patch, in the third abdominal tergum.

*Distribution and Biology.*—The new genus comprises a single known species: *Barbotinia oraniensis* (Barbotin 1964) comb. n., gall maker on capsules of *Papaver* species (Papaveraceae). Its known distribution area includes the mediterranean region and Northern Africa (Barbotin 1964). In Spain it is relatively frequent (Nieves-Aldrey 1984). In the NHML there are six specimens and galls of this species collected in Italy, Moladi Baxi, 1974, identified by Quinlan as *Aylax* sp.

## CECCONIA Kieffer

*Cecconia* Kieffer 1902:7, 93. Type species: *Aulax valerianellae* Thomson 1877. Monobasic and original designation (examined)

*Weldiella* Ionescu and Roman 1962:551. Type species: *Weldiella aequalis* Ionescu and Roman 1962. Monobasic and original designation (not seen)

*Diagnosis.*—Head slightly less than two times broader than long viewed dorsally; in frontal view as broad as high or slightly higher than broad; malar space as long as height of eye; clypeus subquadrangle; radiating striae well impressed; supraclypeal area slightly prominent; female antenna with 13 segments; A3 shorter than A4 or as long as A4; male antenna with 14 antennomeres. Pronotum dorsally not very long with distinct submedial pits; mesoscutum with alutaceous sculpture; notauli very lightly impressed, absent in anterior half of mesoscutum; median mesoscutal impression absent; scutellar foveae confluent, rounded, not well defined posteriorly; scutellum dorsally convex, with reticulate sculpture; mesopleuron finely striated longitudinally. Wings hyaline; radial cell of forewing open on the margin; about three times longer than broad; wing margins with long hair fringe. Third abdominal tergum with a lateral pubescent patch; following segments not punctate.

*Comments.*—The genus is easily distinguished morphologically: the head shape higher than broad viewed frontally; presence of long hairs in the distal wing margin; the shape of the scutellar foveae and notauli conformation. *Weldiella* was erected by Ionescu and Roman (1962) for the species *W. aequalis* found in Rumania, also gall-maker on fruits of species of *Valerianella* (Valerianaceae). On the basis of the original description (since I have not had the chance to examine the type species) I consider the differences used to differentiate that genus from *Cecconia* insufficient to support the description of a separate genus. At most, the mentioned features could indicate the existence of a second species, different from *C. valerianellae*, within the genus *Cecconia*.

*Distribution and Biology.*—The genus comprises two known species which produce galls in the fruits of species of *Valerianella* (Valerianaceae). *C. valerianellae* (Thomson) is widely distributed in Europe from Sweden to Rumania, through the Iberian Peninsula; *C. aequalis* (Ionescu & Roman), is only recorded from Rumania.

### DIASTROPHUS Hartig

*Diastrophus* Hartig 1840 (1839):186. Type species: *Diastrophus rubi* Hartig. Monotypic

Type material of *D. rubi* Hartig, is housed in Munich (ZSBS). It is composed of 1♂ and 5♀. Lectotype ♀, mounted on micro-pin, designated by Weld (1931) (examined).

*Diagnosis.*—Head slightly more than two times broader than long viewed dorsally; in frontal view slightly broader than height; malar space slightly shorter than height of eye; transfacial line 1.5 to 2 times height of eye; supraclypeal area rugose-punctate with some striae; radiating striae incomplete; female antenna with 13 segments, male antenna with 14 antennomeres; A3 slightly longer than A4. Pronotum dorsally long with distinct submedial pits associated with a distinct pronotal plate; mesoscutum mostly smooth and shining; notauli well impressed and complete; median mesoscutal impression variable as to its length; scutellar foveae deep, rounded, smooth and shining; scutellum with a longitudinal furrow; mesopleuron almost entirely smooth and shining, medially with some fine longitudinal striae. Wings weakly infuscate; radial cell of forewing open on the margin; wing apical margin with hair fringe moderately long. Third abdominal tergum without lateral pubescent patch; following segments punctate. Tarsal claws of the legs with conspicuous acute basal lobe or tooth.

*Comments.*—The genus is quite distinct morphologically and together with *Xestophanes* Förster 1869 and *Gonaspis* Ashmead 1897 it forms a separate group within Aylacini. In fact, morphologically, they are distinguished from the rest of the genera of this tribe because they exhibit claws having a basal lobe or tooth; in the biological aspect, both genera are also well characterized by their association with species of *Rubus* and *Potentilla* (Rosaceae). Their special position within Aylacini has been pointed out by recent phylogeny studies of some genera of cynipids, mainly inquiline, by Ritchie (1984) and Ronquist (in press). The latter study indicates that *Diastrophus* is the genus of gall-wasps most closely related to the inquilines, which form a monophyletic group.

*Distribution and Biology.*— In Europe *Diastrophus* is represented by only two species: *D. rubi* Hartig, gall-inducer in species of *Rubus* and *D. mayri* Reinhart, 1876, which forms galls in the stems of *Potentilla argentea* L. In contrast with

Europe, the genus comprises many species in North America, most of them also associated with species of *Rubus*, the others associated with *Potentilla* and *Fragaria*.

### HEDICKIANA gen. n.

Figs. 63-70

Type species: *Aulacidea levantina* Hedicke 1928:81. By present designation. Derivation: Feminine gender. Dedicated to the German entomologist Hedicke, discoverer of the type species.

*Examined material.*—4♀ (paratypes) deposited in the NHML. The holotype stated by the author to be deposited in his collection, has not been found and is probably lost. Consequently, we designate a lectotype amongst the studied paratypes: 1♀, mounted on micro-pin on card point, red label "paratypus"; handwritten labels "*Aulacidea levantina* 1928 Hedicke det" and "Tel Aviv Palestine Bodenheimer".

*Description.*—FEMALE. Head transverse; viewed dorsally (Fig. 63) more than two times broader than long; POL almost equal to OOL; temples slightly expanded behind eyes; viewed frontally (Fig. 64) clearly broader than high; transfacial line slightly more than 1.5 times height of eye; malar space shorter than height of eye; radiating striae on face well impressed laterally; supraclypeal area slightly protuberant, without striae; frons and vertex with coriaceous-alutaceous sculpture; antenna (Fig. 65) 12 segmented, A3 slightly more slender at the base; as long as A4. Pronotum (Fig. 66) dorsally relatively long; submedial pits clearly visible, broadly separated; mesoscutum (Fig. 67) coriaceous-punctate; notauli posteriorly broad but impressed only in posterior 3/4 of mesoscutum; median submedial impression visible in posterior 1/4 of mesoscutum; scutellar foveae large, rounded, contiguous, shining and finely coriaceous; scutellum rugulose; mesopleuron (Fig. 68) longitudinally striated but some reticulation present between the striae. Wings slightly infuscated; radial cell of forewing (Fig. 69) closed on front margin; distal wing margins with hair fringe quite short. Gaster as long as head+thorax; third abdominal tergum covering about 1/3 of gaster; basally smooth without punctures or pubescence; following segments punctate; ventral spine of hypopygium short. Tarsal claws simple.

*Comments.*—The genus is erected for the single species: *H. levantina* (Hedicke), described within *Aulacidea* Ashmead. In common with *Aulacidea*, the new genus exhibits a closed radial cell but it can be distinguished from *Aulacidea* as follows: antenna with 12 segments; mesopleuron not clearly longitudinally striated, in part irregularly reticulate; incomplete notauli and mesoscutum sculptured with piliferous punctures; base of third abdominal tergum lacking lateral pubescent patch.

*Distribution and Biology.*—Eastern Mediterranean; recorded from Crete, Syria and Israel (Hedicke 1928). The only known species, *Hedickiana levantina* (Hedicke), induces conspicuous juicy galls in stems of *Salvia triloba* L. (Lamiaceae).

**IRAELLA** gen. n.  
Figs. 23-27

Type species: *Aulax luteipes* Thomson 1877:807. (= *Timaspis papaveris* Kieffer in Goury et Gignon). By present designation (examined)

Derivation: Feminine gender. Dedicated to my wife Ira.

*Description.*—Head viewed dorsally scarcely less than two times broader than long; temples not expanded behind eyes; viewed frontally (Fig. 26) slightly broader than high; transfacial line slightly more than height of eye; radiating striae on face absent; clypeus trapezoid-shaped, moderately projecting anteriorly, supraclypeal area slightly prominent, reticulate; frons and vertex with reticulate-coriaceous sculpture; female antenna, 13-14-segmented, male antenna 14-15-segmented; A3 almost of equal length to A4 (Fig. 27). Pronotum (Fig. 23) dorsally relatively short; submedial pits present; mesoscutum reticulate-coriaceous; notauli faint in anterior one third of mesoscutum; median mesoscutal impression visible in posterior 1/3 of mesoscutum; scutellar foveae transverse, confluent; scutellum reticulate; mesopleuron (Fig. 24) reticulate. Wings hyaline; radial cell of forewing (Fig. 25) open; three times longer than wide; distal wing margins with hair fringe long. Third abdominal tergum basally with lateral pubescent patch; following segments without punctures.

*Comments.*—The following morphological features define this new genus: face lacking visible radiating striae; clypeus projecting anteriorly; pronotum relatively short dorsally but with visible submedian pits; mesopleuron entirely reticulate; radial cell open on front margin. Some char-

acters, like the general body shape, face and mesopleuron sculpture and shape of the scutellar foveae, approach the new genus to the *Timaspis-Phanacis* complex, but the presence of submedian pits in the pronotum is a differentiating trait; other features that distinguish them are: the entirely reticulate face with total absence of radiating striae; clypeus projecting anteriorly; third antennal segment being of almost the same length as fourth and radial cell of the forewing open on front margin.

The genus is erected for a single species: *Iraella luteipes* (Thomson) comb. n. (= *Timaspis papaveris* Kieffer). Redescription of *Aulax luteipes* Thomson including statement of the synonymy indicated above was recently published (Nieves-Aldrey, in press).

*Distribution and Biology.*—Genus distributed from Sweden to Spain and Iran. The only known species of the genus is associated with *Papaver somniferum* L. (Papaveraceae), on the stems of which it produces inconspicuous galls. I have had the chance to examine in the Natural History Museum of London some specimens from Iran obtained from stems of *Papaver pseudorientale* and *P. bracteatum* Lindley, which might correspond to a different species within the same genus.

**ISOCOLUS** Förster

*Isocolus* Förster 1869:330, 334 (= *Eubothrus* Förster). Type species: *Diastrophus scabiosae* Giraud 1859. Monobasic and original designation (examined)

*Diagnosis.*—Head, viewed dorsally, about two times broader than long; temples at most only slightly expanded behind eyes; viewed frontally 1.3 times broader than high; transfacial line around 1.5 times the height of eye; malar space shorter than height of eye; radiating striae visible laterally, usually incomplete, sometimes present even in the supraclypeal area; antenna of female with 13 antennomeres, A3 shorter than A4; antenna of male with 14 segments. Pronotum dorsally long and submedial pits conspicuous, broadly separated; mesoscutum with coriaceous-rugulose sculpture, sometimes with transverse rugae; notauli usually complete; median mesoscutal impression usually visible at least in posterior one third of mesoscutum; scutellar foveae distinct, well defined; scutellum rugulose; mesopleuron with conspicuous longitudinal striae; wings hya-

line; radial cell of forewing open; R1 and Rs not quite reaching anterior margin of wing; distal margin of wing with hair fringe very short. Third abdominal tergum usually without lateral pubescent patch, rarely with pubescence; abdominal tergites usually punctate, sometimes weakly, from fourth tergite; ventral spine of hypopygium short. Tarsal claws simple.

*Comments.*—The genus is defined mainly on the basis of wing characters as follows: R1 and Rs not quite reaching to anterior margin of wing, radial cell clearly open and wing fringe absent or very short.

*Distribution and Biology.*—The distribution is Palearctic: five species are known in Western Europe. From the biological point of view the genus is associated with Asteraceae; the species inducing galls in stems, achenes or involucre bracteae of species of *Centaurea* and *Serratula* (Asteraceae).

### Redescription Of Some Species

#### *Isocolus scabiosae* (Giraud)

- Diastrophus scabiosae* Giraud 1859:368  
*Diastrophus areolatus* Giraud 1859:369. Syn. n.  
*Isocolus scabiosae* (Giraud): Förster 1869:334  
*Isocolus rogenhoferi* Wachtl 1880:542. Syn. n.  
*Aulax scabiosae* (Giraud): Mayr 1882: 10  
*Aylax scabiosae* (Giraud): Dalla Torre and Kieffer 1910:671  
*Isocolus scabiosae* (Giraud): Rohwer and Fagan 1917:369  
*Isocolus scabiosae* (Giraud): Weld 1952:271

*Material examined.*—The type series of *D. scabiosae* Giraud, in the MNHP, comprises 63 specimens: 30♂, 33♀, mounted on micro-pins, as well as some galls on achenes of *Centaurea scabiosa*. 1♀, set next to a male, with handwritten label "3 mai" and "Museum Paris, coll. GIRAUD", is hereby designated lectotype. Paralectotypes, 18♂ and 12♀

*Redescription.*—FEMALE. (Figs. 71-79). Length 2.8-3.3 mm. Black; gaster red-brown to black; antenna and legs red brown; coxa, base of femora and first two segments of antenna darker. Head viewed dorsally (Fig. 71) 2.2 times broader than long; viewed frontally (Fig. 72) 1.3 times broader than high; temples only slightly expanded behind eyes; frons and vertex with sculpture coriaceous-alutaceous; POL slightly shorter than OOL, OOL about four times greatest diameter of lateral ocellus; transfacial line around 1.6 times height of eye; malar space slightly shorter than height of eye;

face laterally with radiating striae; supraclypeal area slightly raised, with some striae; antenna (Fig. 73) about 2/3 the length of the body, with 13 antennomeres, A3 slightly shorter than A4. Pronotum (Fig. 75) coriaceous, laterally pubescent; dorsally long, with distinct submedial pits; mesoscutum (Fig. 76) with coriaceous-rugulose sculpture posteriorly with some conspicuous transverse rugae; notauli complete, well impressed posteriorly; median mesoscutal impression distinct in posterior half of mesoscutum; scutellar foveae large, rounded; shining and almost smooth; separated by broad posteriorly septum; scutellum ovate, rugulose with the posterior half more or less flat and sloping backwards; mesopleuron (Fig. 77) longitudinally striated. Wings hyaline or very lightly infuscated; R1 and Rs of forewing not quite extending to wing margin and radial cell open (Fig. 79); Rs slightly curved apically; length of the radial cell about 3 times the width; areolet indistinct; fore wing without distinct hair fringe on wing margins. Third abdominal tergum (Fig. 78) basally smooth without sculpture or pubescence; posterior third of third tergite and following segments conspicuously punctate; ventral spine of hypopygium very short; tarsal claws simple. MALE. differs from female in antenna (Fig. 74) with 14 antennomeres; A3 slightly curved in the middle.

*Comments.*—The complete series from the Giraud Collection, sent by the MNHP, comprises 63 individuals. In contrast with the specimens predominantly black described above, other individuals of a lighter, chestnut-reddish shade and some completely reddish individuals are included in the series. The latter also exhibit other morphological differences such as a stronger mesoscutal sculpture and less impressed notauli and medial mesoscutal impression. Also included in the series are some galls consisting of transformed achenes from flower heads of *Centaurea scabiosa* L. and in compliance with the handwritten labels from Giraud: "caput centaureae scabiosae" and the date, at least part of the specimens of the series should have been obtained from these galls. Giraud originally described the species *Diastrophus scabiosae* as obtained from conspicuous galls in the stems of *Centaurea scabiosa* L. (Giraud 1859), but these galls are not included in the series. The specimens obtained from galls in achenes could belong to *Isocolus rogenhoferi* Wachtl. However, the status of the

latter has not been clear, since only differences in the coloration of the antennal flagellum together with the different position of the galls have been pointed out in the literature (Kieffer 1901, Eady and Quinlan 1963) to separate it from *I. scabiosae*. For these reasons, I consider that there is only one species with a wide morphological variability being capable of inducing galls on both stems and flower heads of species of *Centaurea*, mainly *C. scabiosa* L. It is possible that the two types of galls correspond to two different generations of the same species. In the same work, Giraud described another species, *Diastrophus areolatus*, from 2 females caught by netting near Vienna. The differences between the latter and *I. scabiosae* were stated to be reddish coloration of the antennal flagellum and presence of areolet in the fore-wings. In the examined series, I found 2 specimens which could correspond to *D. areolatus* labeled "captur 13 juill, Turksch". The presence or absence of the areola, as well the general coloration, is quite variable in the whole of the series, so I consider *D. areolatus* as conspecific with *I. scabiosae* and, therefore, I establish the corresponding new synonymy.

#### *Isocolus serratulae* Mayr comb. n.

*Aulax serratulae* Mayr 1882:9

*Aylax serratulae* (Mayr): Kieffer 1901:313

*Type material*.—Series composed of 31 specimens: 12 ♂, 19 ♀, most of them set on micro-pins (NHMW). 1 ♀, with handwritten labels "*serratulae* y det Rogenhofer" and "Luxenburg, Rogenh 1881", hereby designated lectotype. Other specimens carry handwritten labels "*Aul. serratulae* det. G. Mayr" and "*Serratula heterophylla*"; designated paralectotypes.

*Redescription*.—(Figs. 80-87). FEMALE. Length 2.5 mm. Black; gaster red-brown to dark-brown; antenna and legs light brown; coxa, base of femora and two first segments of antenna darker. Head viewed dorsally (Fig. 80) about 2 times broader than long; viewed frontally (Fig. 81) 1.2 times broader than high; temples not expanded behind the eyes; frons and vertex with sculpture minutely coriaceous-reticulate; POL:OOL as 11:9; OOL about three times the greatest diameter of lateral ocellus; transfacial line around 1.5 times the height of eye; malar space around 0.6 times the height of eye; face laterally with radiating striae; supraclypeal

area slightly raised, without striae; antenna (Fig. 82) with 13 antennomeres, A3 clearly shorter than A4. Pronotum (Fig. 83) reticulate-coriaceous, laterally pubescent; dorsally long, with distinct submedial pits; mesoscutum (Fig. 84) with reticulate-coriaceous sculpture; notauli complete, well impressed posteriorly; median mesoscutal impression distinct in posterior 1/5 of mesoscutum; scutellar foveae large, subtriangle-shaped; not smooth; separated by a posteriorly broader septum; scutellum reticulate-coriaceous, with longitudinal furrow variably impressed; mesopleuron (Fig. 85) longitudinally striated. Wings hyaline, slightly longer than the body; R1 and Rs of forewing not quite reaching to wing margin and radial cell open (Fig. 86); length of the radial cell about 2.6 times the width; areolet indistinct; fore wing without distinct hair fringe on wing margins. Third abdominal tergum (Fig. 85) basally with a lateral pubescent patch; posterior third of third tergite and following segments conspicuously punctate; ventral spine of hypopygium very short; tarsal claws simple. MALE. Differs from female in antenna with 14 antennomeres (Fig. 87), A3 not modified only slightly curved.

*Comments*.—This species was described by Mayr from material collected by Rogenhofer on *Serratula heterophylla* auct. ross non (L.) Desf. The gall is probably produced on this plant, but it has not been described. Since the description, the species has been recorded once from Ukraine, including galls Zerova et al. (1988), so it is only known from Austria and that country. The features of this species fit well in the genus *Isocolus*, except for the third abdominal tergum with basal pubescent patch, so I transfer it to this genus.

#### *Isocolus lichtensteini* (Mayr) comb. n.

*Aulax lichtensteini* Mayr 1882:7

*Aylax lichtensteini* (Mayr): Kieffer 1901:297

*Isocolus tavaresi* Nieves-Aldrey 1984:243. Syn. n.

*Type material*.—Type series composed of 2 ♀; 1 ♀, mounted on micro-pin, with handwritten labels "*Aulax lichtensteini*, det. G. Mayr" and "*Centaur. gall lich*" designated lectotype. Paralectotype, one female with label "*Centaur. salmant. gall Lich*".

*Comments*.—This species was described from material collected in Montpellier (France), producing galls in the stems of *Centaurea salmantica* L.

(=*Microlonchus salmanticus*) (Mayr, 1882). *Isocolus tavaresi* Nieves-Aldrey, described from material reared from galls on *Centaurea aspera* L. in Spain (Nieves-Aldrey, 1984), later also found on *Centaurea melitensis* L., (Nieves-Aldrey, unpublished), is conspecific with the two type specimens studied and, therefore, I establish the corresponding synonymy.

The type specimens differ from individuals collected in Spain (Nieves-Aldrey 1984) only in their lighter chestnut-reddish coloration, also extended for antenna and legs, including the coxae. Therefore, the types exhibit only a slight colour contrast between the two first antennal segments and the flagellum, and the longitudinal furrow of scutellum is more pronounced compared to the Spanish specimens collected.

### LIPOSTHENES Förster

*Liposthenus* (!) Förster 1869:332.

*Liposthenes* Förster 1869:336. Type species: *Aylax glechomae* Hartig. Monotypic and orig. desig. (examined). The types of *Aylax glechomae* Hartig, in the ZSM, consist of 4 ♀, mounted on pins. One of them carry label of lectotype ♀ designated by Weld in 1931 (Weld 1952).

*Diagnosis*.—Head, viewed dorsally, slightly less than two times broader than long; in frontal view slightly broader than high; transfacial line 1.5 times height of eye; malar space shorter than height of eye; frons and vertex finely reticulate; radiating striae incomplete, weakly impressed; antenna of female with 13 segments, A3 slightly longer than A4; male antenna 14-segmented. Pronotum dorsally long, laterally strongly pubescent and with some longitudinal striae or rugae; submedial pits conspicuous, associated with a distinct pronotal plate; mesoscutum regularly coriaceous and shining; notauli well impressed and complete; median mesoscutal impression very short; scutellar foveae deep, rounded, smooth and shining; mesopleuron finely and clearly striated longitudinally. Wings hyaline; radial cell of forewing open on front margin; length of radial cell slightly less than three times width. Third abdominal tergum with conspicuous lateral pubescent patch; following segments not punctate. Tarsal claws simple.

*Comments*.—The genus is morphologically similar to *Isocolus* Förster, but can be separated by the pronotum being strongly pubescent laterally;

presence of wing fringe on distal margin; third antennal segment being longer than fourth; third abdominal tergum having a lateral pubescent patch and in general sculpture and biology.

*Distribution and Biology*.—The genus comprises a single known species from Western Europe which causes the formation of galls in the runners, stems and leaves of *Nepeta* (= *Glechoma*) *hederacea* L. (Lamiaceae).

### NEAYLAX gen. n.

Type species: *Aylax salvuae* (Giraud 1859):369. By present designation. (examined)

Derivation: from Neos and Aylax (new Aylax)

*Description*.—Head, viewed dorsally, two times broader than long; temples not expanded behind the eyes; radiating striae on face well impressed laterally; supraclypeal area raised, without striae; frons and vertex with coriaceous or alutaceous sculpture; antenna 12-13-segmented in females; 14-15-segmented in males; A3 as long as A4 or shorter than A4. Pronotum dorsally long; submedial pits clearly visible, not broadly separated; mesoscutum coriaceous or alutaceous, sometimes punctate; notauli complete or faint anteriorly; scutellar foveae large, rounded; mesopleuron longitudinally striated. Wings hyaline; radial cell of forewing open on front margin but R<sub>1</sub> reaching margin; distal wing margins with hair fringe moderately long. Third abdominal tergum basally smooth or with a lateral pubescent patch; following segments finely punctate but punctures not conspicuous; ventral spine of hypopygium short. Legs with tarsal claws simple.

*Comments*.—*Neaylax* is erected to comprise some species formerly included in *Aylax* Htg, but which do not fit well in that genus. The new proposed genus is closely related to *Isocolus* Förster, from which it differs as follows: radial cell of forewing not completely open along the margin and at the base; first abscissa of radius reaching the wing margin and presence of hair fringe on the distal margin of the wing (absent in *Isocolus*). Biologically *Neaylax* differs from *Isocolus* in its association with Lamiaceae rather than with Asteraceae. The dorsally long pronotum, the rounded scutellar foveae, and the association with Lamiaceae and not with Papaveraceae separate it from *Aylax* Htg.

*Distribution and Biology.*— The genus comprises two species distributed in centre and south of Europe which produce galls on species of *Salvia* (Lamiaceae) and a third species, only recorded from the Iberian Peninsula whose host plant and gall are unknown.

## REVISED SPECIES

***Neaylax salviae* (Giraud), comb. n.**

*Aulax salviae* Giraud 1859:369

*Isocolus salviae* (Giraud): Nieves-Aldrey 1988:224. Syn. n.

*Type material.*—The type series of *A. salviae*, in the NHMW, sent to me by M. Fischer, consists of 12 specimens. 1♂, mounted on a rectangular card with labels: red "Type" and white handwritten "*Aulax salviae* Giraud", is designated lectotype. 1♂, 1♀, mounted on micro-pin, with labels "Collect. Mayr" and "*Aulax salviae* Gir, det. G. Mayr" clearly do not belong to the type series, although they are conspecific with *A. salviae* Giraud. In the same series 1♂, 2♀, collected by Mayr, determined as *Aulax salviae* Giraud, are cynipids but do not correspond to that species. Finally 2 specimens, identified as *A. salviae* by Fahringer, belong to the family Eucolidae.

*Redescription.*—MALE. (Figs. 96-103). Length 1.8 mm. Red-brown; antenna red-brown; legs with coxae red-brown, tibiae and tarsi paler. Head viewed dorsally (Fig. 96) about 2 times broader than long; temples not expanded behind the eyes; frons and vertex with sculpture coriaceous-alutaceous; POL as long as OOL; OOL about 4 times the greatest diameter of lateral ocellus; face laterally with radiating striae; supraclypeal area almost raised, without striae; antenna (Fig. 98) with 14 antennomeres, A3 clearly shorter than A4. Pronotum (Fig. 100) coriaceous; dorsally long, with distinct submedial pits; mesoscutum (Fig. 101) finely alutaceous and with some obsolete punctures medially; notauli relatively expanded posteriorly, complete but slightly faint anteriorly; median mesoscutal impression indistinct in posterior 1/4 of mesoscutum; scutellar foveae large, rounded, smooth and shining, separated by a narrow septum; scutellum weakly rugulose, with a weak longitudinal furrow; mesopleuron (Fig. 102) longitudinally striated. Wings hyaline; radial cell of forewing (Fig. 103) open on front margin but

R<sub>1</sub> reaching margin; length of radial cell about three times the width; hair fringe on distal margin of wing long. FEMALE. differs from male as follows: antenna with 13 antennomeres (Fig. 98); third abdominal tergum without lateral pubescent patch; following segments with fine and inconspicuous punctures; ventral spine of hypopygium short.

*Distribution and Biology.*— The species was described from specimens collected in Dalmatia, reared from galls in the fruits of *Salvia officinalis* L. Species of apparently Eastern Mediterranean distribution.

SPECIES TRANSFERRED TO  
*NEAYLAX* GEN. N.***Neaylax verbenacus* (Nieves-Aldrey), comb. n.**

*Isocolus verbenacus* Nieves-Aldrey 1988:221. Syn. n.

This species is closely related to *N. salviae* (Giraud). It was described within *Isocolus* from Spain. Its galls are produced in fruits of *Salvia verbenaca* L.

***Neaylax versicolor* (Nieves-Aldrey), comb. n.**

*Aylax versicolor* Nieves-Aldrey 1985:122. Syn. n.

This species was described under *Aylax* (Nieves-Aldrey 1985). It is known only from Spain. Gall unknown.

## PANTELIELLA Kieffer

*Pantelia* Kieffer 1901:248 (non Bolivar 1887, Orthopt.)

*Panteliella* Kieffer 1901:324. Type species: *Aulax fedtschenkoi* (Rübsaamen 1896). Monobasic

*Endocaulonia* Ionescu and Roman 1960:222. Type species: *Endocaulonia bicolor* Ionescu and Roman 1960. By original designation.

Weld (1952), stated that the types, consisting of slide-mounts of two adults in balsam, were in the Berlin Museum. Later on, Quinlan (1968) stated that the type material consisted of two specimens deposited in the Vienna Museum but Dr. Fischer informed me that the only material of *A. fedtschenkoi* housed in that museum consisted in galls. I have had the chance to examine one of the preparations of the Berlin Museum, consisting of a head in bad condition, with one of the two antennae being

complete, a leg and the gaster. The preparation has a red type label and is printed "*Aulax fedtschenkoi*; Bijuk Onlar, juni 1893; Blattgallen on *Phlomis tuberosa*". The type species was redescribed by Weld (1930) and by Quinlan (1968).

*Endocaulonia* was described by Ionescu and Roman in 1960 based on *E. bicolor*, a species discovered by these authors in Rumania producing galls in the stems of *Phlomis tuberosa* L. Although I have not been able to examine the types, it seems clear from the detailed description that this genus is very similar to *Panteliella* Kieffer only differing slightly in the relative lengths of pedicel and third antennal segment. The descriptions of the two genera, except for the mentioned feature, are fully coincident, as is the gall and the host plant, which makes me consider that *Endocaulonia* Ionescu and Roman is synonymous with *Panteliella* Kieffer. The type species of *Endocaulonia* appears to be synonymous with *Panteliella fedtschenkoi*, although in this case I do not venture to formally establish the synonymy without a previous examination of the type.

I present the following diagnosis of the genus based on Quinlan's redescription (1968).

*Diagnosis*.—Female antenna 14-segmented; male 15-segmented; A3 and A4 of same length in the two sexes. Mesoscutum reticulate; notauli and median mesoscutal impression very faintly indicated; scutellar foveae distinct separated by a broad and striate septum; mesopleuron longitudinally striated. Radial cell of forewing open on the margin; wing fringe on distal margin distinct. Third abdominal tergum without lateral pubescent patch; following tergites weakly punctate on lateral margins. Tarsal claws simple.

The genus is close to *Neaylax* Nieves-Aldrey and to *Rhodus* Quinlan. It can be separated from the former by the obsolete notauli, scutellar foveae broadly separated and female antenna 14-segmented. From *Rhodus* it is distinguished by the distinct fringe on distal margin of forewing, the obsolete notauli and A3 not being shorter than A4.

*Distribution and Biology*.—Only one known species: *Panteliella fedtschenkoi* (Rübsaamen, 1896) distributed in central and eastern Europe and eastern Mediterranean. It produces galls in the leaves and stems of *Phlomis tuberosa* L. (Lamiaceae). *Panteliella bicolor* (Ionescu and Roman) is possibly a second species of the genus, only known from Rumania.

## PHANACIS Förster

*Phanacis* Förster 1860:145. Type species: *Phanacis centaureae* Förster 1860. Monobasic.

*Gillettea* Ashmead, 1897:69. Type species: *Gillettea taraxaci* Ashmead 1897. Original designation.

Weld (1952) pointed out that Förster's types in the Berlin Museum were destroyed by dermestids but he could observe good specimens of *P. centaurea* in Vienna. However, I have abundant Iberian material of the type species at my disposal from which I have produced the diagnosis of the genus.

*Gillettea* Ashmead was synonymized with *Phanacis* Förster by Eady and Quinlan (1963). I have examined the type species of *Gillettea* and I confirm the synonymy.

*Diagnosis*.—Head, viewed dorsally two times broader than long; viewed frontally slightly broader than high; frons and vertex reticulate-coriaceous; radiating striae of face weakly impressed, incomplete; female antenna 13-segmented; male antenna with 14 antennomeres; A3 clearly longer than A4. Pronotum dorsally moderately long, without distinct submedial pits; mesoscutum reticulate-coriaceous; notauli usually faint anteriorly; scutellar foveae transverse, confluent, not well defined or indistinctly closed posteriorly; mesopleuron reticulate. Wings fully developed in females, sometimes reduced in males; radial cell of forewing usually closed, sometimes incompletely on the margin; hair fringe on distal wing margins moderately long. Third abdominal tergum without lateral pubescent patch. Tarsal claws simple.

*Comments*.—*Phanacis* is easily distinguished from other genera of Aylacini excepting *Timaspis* by the absence of pronotal submedian pits on the pronotum and the reticulate sculpture of the mesopleuron. The genus was considered by Eady and Quinlan (1963) to comprise also the species included in *Timaspis* Mayr. However, when some species of the latter genus not examined by Eady and Quinlan, are included in *Phanacis*, the heterogeneity of the grouping becomes evident. This is the case with, e.g., *Timaspis cichorii* Kieffer and *T. phoenixopodos* Mayr. The boundary between the two genera does not, however, seem clearly defined and some species, particularly *P. caulicola* (Hedicke), *P. hypochoeridis* (Kieffer) and *Timaspis lampsanæ* Perris, are not easily assigned to one or



the other genus. All the known species of *Phanacis* (*s. str.*) produce galls on plants of the family Asteraceae.

*Distribution and Biology.*—The genus has a palaeartic distribution with two species introduced in North America. All the known species are associated with Asteraceae. Galls are produced mostly on stems.

### *Phanacis taraxaci* (Ashmead)

*Gillettea taraxaci* Ashmead 1897:69.

*Phanacis taraxaci* (Ashmead): Eady and Quinlan, 1963:18.

*Examined material.*—The type material consists of two female specimens; one in the USNM and the other in the NHMW (both examined); the specimen from Wien, in better condition, is designated lectotype.

The species is being studied in detail by Shorthouse (personal communication). Apparently the species has been introduced in North America, together with the host plant *Taraxacum*, from Europe. But the existence of the species in Europe is documented only by a few gall records, so the European origin of this species does not seem clear. The species is widely distributed and relatively abundant in North America (Shorthouse, pers. comm.).

### RHODUS Quinlan

*Rhodus* Quinlan 1968:282. Type species: *Rhodus oriundus* Quinlan 1968. Monotypic and original designation (examined)

*Diagnosis.*—Figs. 104-110. Head viewed dorsally (Fig. 104) two times broader than long; viewed frontally (Fig. 105) clearly broader than high; frons and vertex with reticulate sculpture; radiating striae of face present laterally; supraclypeal area raised; female antenna (Fig. 106) 13-segmented; male with 14 antennomeres; A3 clearly shorter than A4. Pronotum (Fig. 107) dorsally long, with distinct submedial pits; mesoscutum (Fig. 108) with dull reticulate sculpture and some scattered piliferous punctures; notauli distinct in posterior 3/4 of mesoscutum; faint or obsolete anteriorly; scutellar foveae large, rounded, sculptured; septum relatively broad; mesopleuron (Fig. 109) longitudinally striated. R1 and Rs not quite reaching anterior margin of wing; radial cell of forewing

(Fig. 110) open; hair fringe on distal wing margins absent. Third abdominal tergum without lateral pubescent patch. Tarsal claws simple.

*Comments.*—The genus was based on one species, *Rhodus oriundus* Quinlan, found in Rhodes Island, galling apical buds of *Phlomis cretica* Presl (Quinlan 1968). Its morphological features relate it to the genera *Isocolus* Förster and *Neaylax* Nieves-Aldrey; it differs from the former in the conformation of the notauli, the sculpture of the mesoscutum and the distal margin of the wing completely lacking hairs. The wing venation with R1 and Rs not quite reaching the anterior margin of wing and the absent hair fringe on distal wing margin separate it from *Neaylax*.

*Distribution and Biology.*—The genus comprises one described species, only recorded from Rhodes (Greece) associated with *Phlomis* (Lamiaceae).

### TIMASPIS Mayr

*Timaspis* Mayr 1881:18. Type species: *Diastrophus lampsanae* Karsh. Monotypic. (Type.—*Timaspis phoenixopodos* Mayr 1882. Designated by Ashmead 1903 p.214).

*Phanacis* Förster (part): Eady and Quinlan 1963:18.

*Aylacopsis* Hedicke 1923:81. Syn. n. Type species: *Aylacopsis heraclei* Hedicke 1923. Monotypic and original designation.

The type material of *Timaspis lampsanae*, in the Museum of Vienna, consists of a ♀ mounted on micro-pin on polyporous strip labeled "*Tim. lampsanae* det Karsch Type"; "*lampsanae* Karsch Type"; "collect G. Mayr" and red label "Holo-type".

*Diagnosis.*—Radiating striae present laterally on the face; incomplete. Female antenna of 13-14 segments; 14-15 in males; A3 relatively long; at least 1.5 times longer than A4. Pronotum dorsally moderately long, without distinct submedial pits; notauli usually complete but often not well impressed anteriorly; median mesoscutal impression usually present; scutellar foveae small, confluent, usually indistinctly closed posteriorly; mesopleuron reticulate-rugulose, rugulose-alutaceous or striate-alutaceous. Radial cell of forewing closed on the margin, sometimes incompletely so anteriorly; hair fringe on distal margins of wing long. Third abdominal tergum without lateral pubescent patch. Tarsal claws simple.

*Comments.*—*Timaspis* can be distinguished from *Phanacis* on the basis of its rugulose-reticu-

late sculpture of the mesopleuron and complete notauli. *Timaspis* was synonymized with *Phanacis* Förster by Eady and Quinlan (1963) but these authors' concept of *Timaspis* was incomplete because it was limited to the type species of the genus, *T. lampsanae*. But if other species described within *Timaspis* are considered, especially *T. phoenixopodos* Mayr, I consider it advisable to keep the genera separate. It must be emphasized, however, that the boundary between the two genera is not clearly defined and some species are difficult to assign to one genus or the other.

*Aylacopsis* Hedicke, was described from a species that produces galls in the stems of *Heracleum sphondylium* L. (Apiaceae) (Hedicke 1923). After having examined the type species, I consider that it fits well within *Timaspis* Mayr. Consequently, I synonymize *Aylacopsis* with *Timaspis* Mayr.

*Distribution and Biology*.—As understood herein, the genus comprises 9 species in West-Europe. All the species, excepting one, are associated with Asteraceae

#### *Timaspis heraclei* (Hedicke), comb. n.

*Aylacopsis heraclei* Hedicke 1923:81. Syn. n.

The type of *Aylacopsis heraclei* Hedicke in the Berlin Museum consists of a ♀ specimen glued on a card triangle. The specimen carries the following labels: white handwritten "Doicul, Leipzig 26-2-15"; "Aylacopsis heraclei ♀ Hedicke" and red printed "Type".

We can contribute the following complementary data to the original description: Figs. 111-118. Head, viewed dorsally (Fig. 111), about two times broader than long; viewed frontally (Fig. 112) slightly broader than high; frons and vertex finely coriaceous; POL slightly less than two times OOL; transfacial line about 1.6 times height of eye; face laterally with radiating striae; supraclypeal area without striae; with weak median protuberance; malar space about 0.7 times height of eye; antenna (Fig. 113) slender, filiform, with 14 antennomeres; A3 slightly curved in the middle, about 1.7 times longer than A2; 1.3 times longer than A4. Pronotum (Fig. 114) dorsally only moderately long; scarcely pubescent, without submedial pits; mesoscutum (Fig. 115) finely reticulate-coriaceous; notauli complete; median mesoscutal impression impressed in posterior 1/3 of mesoscutum; scutellar foveae confluent, indistinctly closed posteri-

orly; scutellum ovate, weakly rugulose; mesopleuron (Fig. 116) reticulate-rugulose. Forewing with radial cell (Fig. 117) open anteriorly on margin but R<sub>1</sub> clearly reaching wing margin; length of radial cell 2.6 times width; hair fringe on wing margins long. Third abdominal tergum (Fig. 118) without lateral pubescent patch; following segments not punctate; ventral spine of hypopygium quite short, slightly visible. Tarsal claws simple.

*Comments*.—Within *Timaspis* Mayr this species is morphologically close to *Timaspis cichorii* from which it is differentiated by the coloration, sculpture of the mesoscutum and conformation of the scutellar foveae. According to the original description, this species produces galls in the stems of *Heracleum sphondylium* (Apiaceae) at that time being the first cynipid species demonstrated to be associated with this family of plants. Afterwards this species has not been recorded again and, consequently, the host has not been confirmed. It may, however, be pointed out that *Phanacis eryngii* Diakonchuk, another Aylacini species, was recently found in Eastern Europe associated with Apiaceae (*Eryngium*) (Diakonchuk 1984).

#### *Timaspis lusitanica* Tavares

*Timaspis lusitanicus* Tavares 1904:301

*Timaspis lusitanica* Tavares 1904: D T. and Kieffer 1910. Emend. *Phanacis crepidos* Weidner 1965:1. Syn. n.

*Timaspis lusitanica* Tavares was described from Portugal (Tavares 1904) reared from galls on *Barkausia taraxacifolia* DC. (Asteraceae). More recently, it has been recorded from Spain, on the same host plant (Nieves-Aldrey 1992). *Phanacis crepidos* was described from Germany (Weidner 1965) from material reared from galls on *Crepis biennis* L. (Asteraceae). Having examined the type material from the Museum of Hamburg, I have concluded that it is the same species described by Tavares, so I establish the corresponding new synonymy.

## XESTOPHANES Förster

## LITERATURE CITED

*Xestophanes* Förster 1869:332, 337. Type species: *Cynips potentillae* De Villers. Monotypic and original designation.

*Diagnosis*.—Face laterally with radiating striae; supraclypeal area without striae; with weak median protuberance; frons and vertex almost smooth and shining; antenna of female 13-segmented, A3 as long as or slightly longer than A4; antenna of male 14 segmented. Pronotum dorsally long, laterally pubescent; submedial pits conspicuous; mesoscutum smooth and shining; notauli complete or faint anteriorly; median mesoscutal impression slightly indicated; scutellar foveae smooth; mesopleuron smooth and shining. Forewing with radial cell open on the margin but R<sub>1</sub> reaching to wing margin; hair fringe moderately long. Third abdominal tergum laterally smooth and glabrous. Tarsal claws with weakly developed basal lobe or tooth.

*Comments*.—The genus, together with the allied genus *Diastrophus*, form a distinct unit within the Aylacini: morphologically, by the tarsal claws having an acute basal lobe or tooth and frons, vertex and mesopleuron without sculpture; biologically, by their association exclusively with Rosaceae (the genera *Potentilla* and *Rubus*). The genus is very likely monophyletic, based on the fusion of third and fourth abdominal terga in the females.

*Distribution and Biology*.— Two species of *Xestophanes* are known in Western Europe, both gall makers on stems and runners of species of *Potentilla*.

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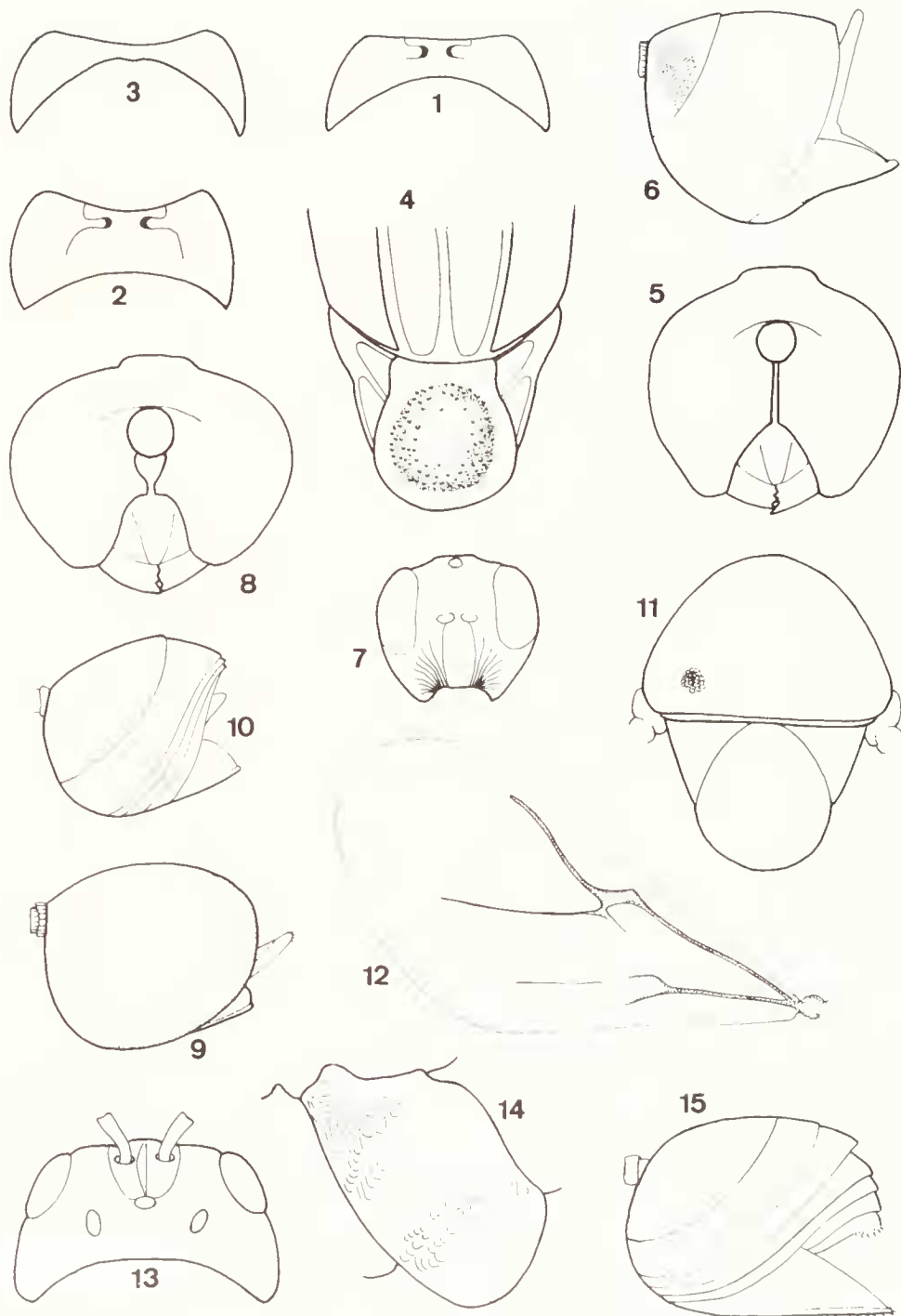
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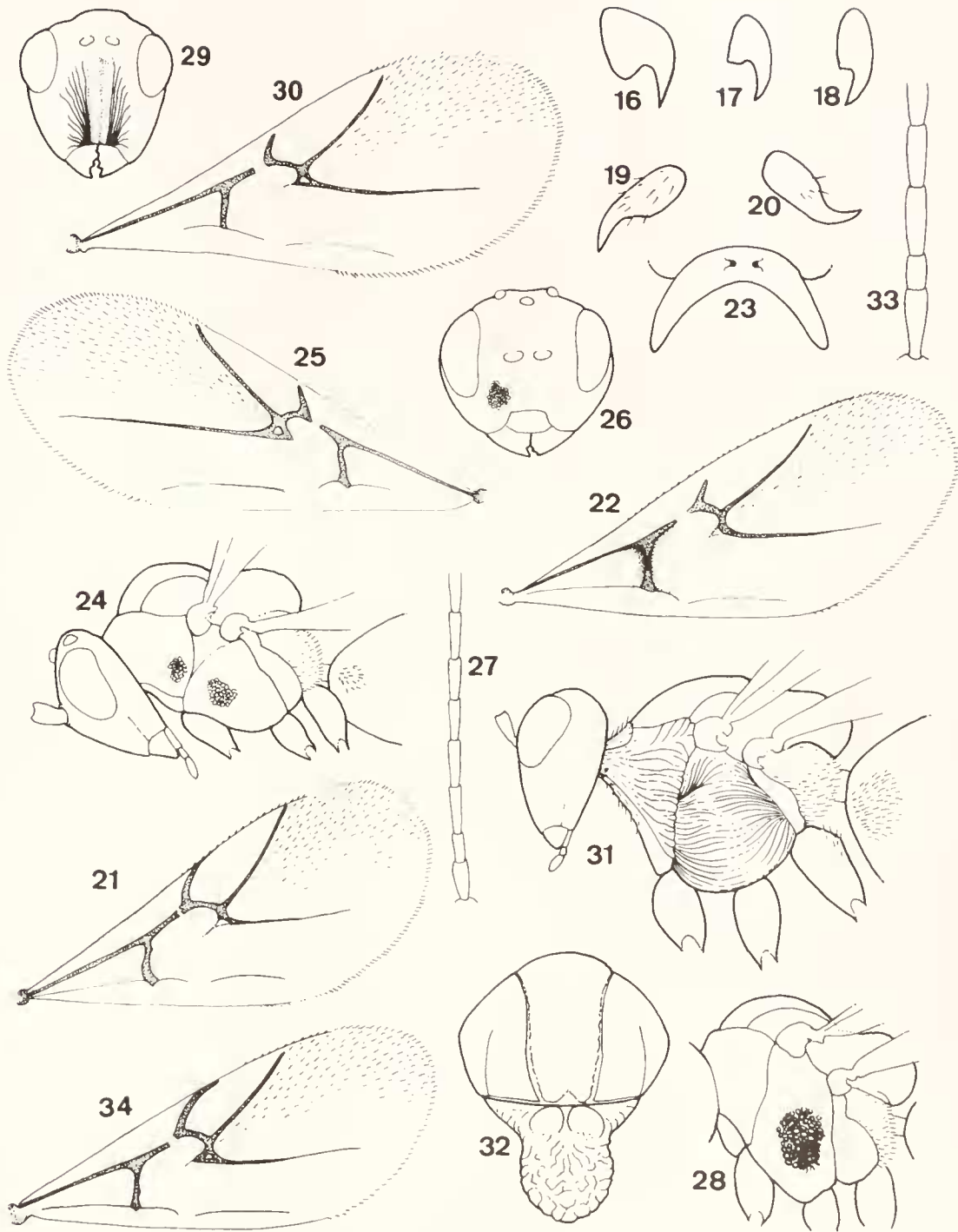
## APPENDIX

Check list of the west-European genera and species of Aylacini including their host plant genera.

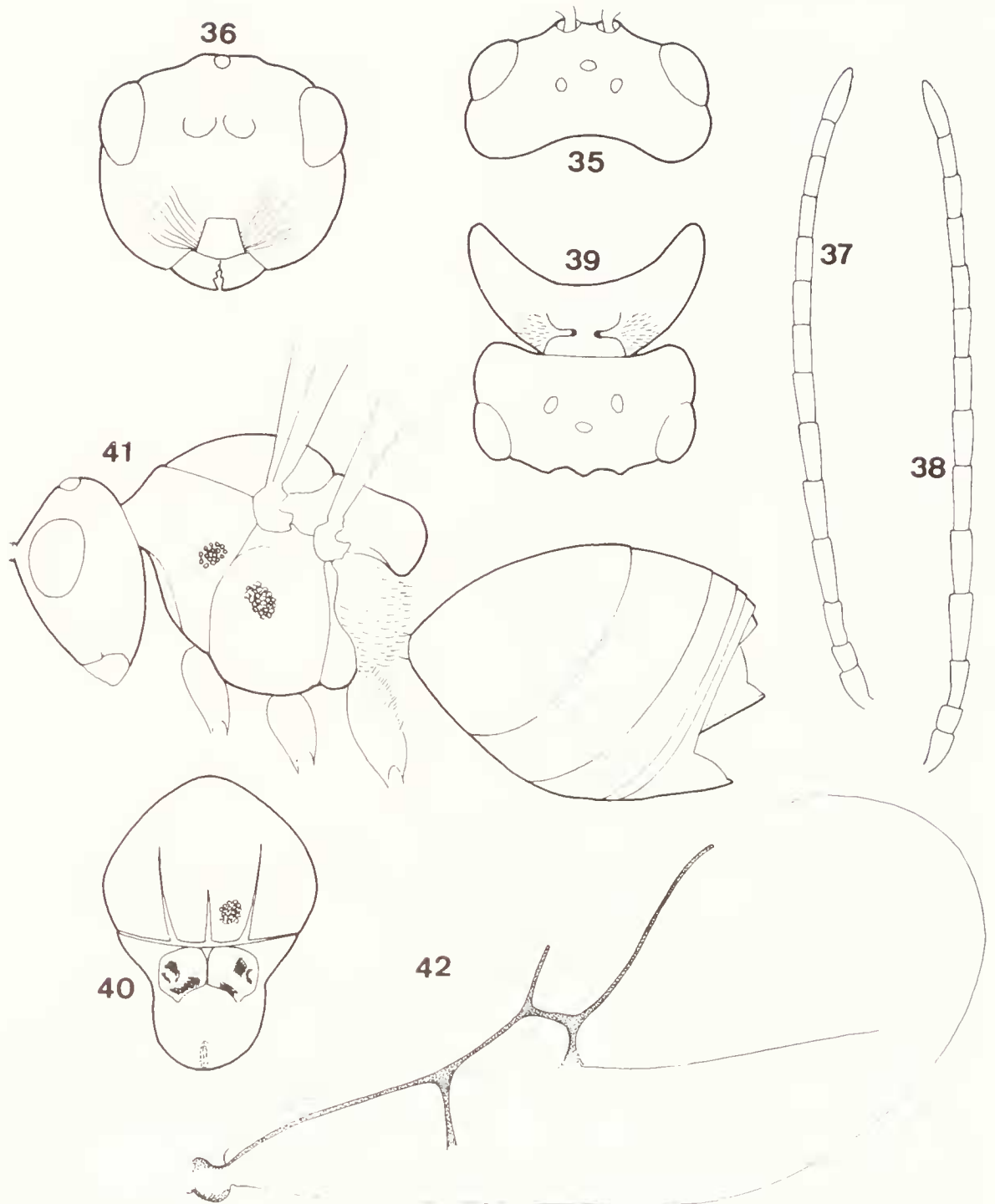
AYLACINI Ashmead 1903.....	Host plant genus	<i>tavaresi</i> Nieves-Aldrey, 1984 <b>syn. n.</b>	
<i>AULACIDEA</i> Ashmead, 1897		<i>scabiosae</i> (Giraud, 1859).....	<i>Centaurea</i>
<i>abdominalis</i> (Thomson, 1877).....	?	<i>rogenhoferi</i> Wachtl, 1880 <b>syn. n.</b>	
<i>arnicae</i> Hoffmeyer, 1930.....	<i>Arnica</i>	<i>serratulae</i> (Mayr, 1882) <b>comb. n.</b> .....	<i>Serratula</i>
<i>follioti</i> Barbotin, 1972.....	<i>Sonchus</i>		
<i>hieracii</i> (Bouché 1834).....	<i>Hieracium</i>	<b>LIPOSTHENES</b> Förster	
<i>artemisiae</i> (Thomson, 1877)		<i>glechomae</i> (Linnaeus, 1758).....	<i>Nepeta</i>
<i>crassinervis</i> (Thomson, 1877)		<i>latreillei</i> (Kieffer, 1898)	
<i>foveiger</i> (Thomson, 1877)		<b>NEAYLAX</b> <b>gen. n.</b>	
<i>kernerii</i> (Wachtl, 1891) <b>comb. n.</b> .....	<i>Nepeta</i>	<i>salviae</i> (Giraud, 1859) <b>comb. n.</b> .....	<i>Salvia</i>
<i>kiefferi</i> Cotte, 1915		<i>verbenacus</i> (Nieves-Aldrey, 1988) <b>comb. n.</b> .....	<i>Salvia</i>
<i>laurae</i> Nieves-Aldrey, 1992.....	?	<i>versicolor</i> (Nieves-Aldrey, 1985) <b>comb. n.</b> .....	?
<i>nibletti</i> Quinlan, 1969.....	<i>Hieracium</i>		
<i>pilosellae</i> (Kieffer, 1901).....	<i>Hieracium</i>	<b>PANTELIELLA</b> Kieffer, 1902	
<i>scorzonerae</i> (Giraud, 1859).....	<i>Scorzonera</i>	<b>ENDOCAULONIA</b> Ionescu and Roman, 1960 <b>syn. n.</b>	
<i>subterminalis</i> Niblett, 1946.....	<i>Hieracium</i>	<i>fedtschenkoi</i> (Rubsaaamen, 1896).....	<i>Phlomis</i>
<i>tragopogonis</i> (Thomson, 1877).....	<i>Tragopogon</i>	<i>bicolor</i> (Ionescu and Roman, 1960).....	<i>Phlomis</i>
<b>AYLAX</b> Hartig, 1840		<b>PHANACIS</b> Förster, 1860	
<i>hypecoi</i> Trotter, 1912.....	<i>Hypecoum</i>	<b>GILLETTEA</b> Ashmead, 1897	
<i>minor</i> Hartig, 1840.....	<i>Papaver</i>	<i>caulicola</i> (Heddicke, 1939).....	<i>Picris</i>
<i>papaveris</i> (Perris, 1839).....	<i>Papaver</i>	<i>centaureae</i> Förster, 1860.....	<i>Centaurea</i>
<i>artemisiae</i> Weidner, 1968 <b>misident.</b>		<i>punctipleuris</i> (Thomson, 1877)	
<b>BARBOTINIA</b> <b>gen. n.</b>		<i>hypochoeridis</i> (Kieffer, 1887).....	<i>Hypochoeris</i>
<i>oraniensis</i> (Barbotin, 1964) <b>comb. n.</b> .....	<i>Papaver</i>	<i>taraxaci</i> (Ashmead, 1897).....	<i>Taraxacum</i>
<b>CECCONIA</b> Kieffer, 1902		<b>RHODUS</b> Quinlan, 1968	
<b>WELDIELLA</b> Ionescu and Roman, 1962 <b>syn. n.</b>		<i>oriundus</i> Quinlan, 1968.....	<i>Phlomis</i>
<i>valerianellae</i> (Thomson, 1877).....	<i>Valerianella</i>	<b>TIMASPIS</b> Mayr, 1881	
<i>aequalis</i> (Ionescu and Roman, 1962).....	<i>Valerianella</i>	<b>AYLACOPSIS</b> Heddicke, 1923 <b>syn. n.</b>	
<b>DIASTROPHUS</b> Hartig, 1840		<i>cichorii</i> Kieffer, 1909.....	<i>Cichorium</i>
<i>rubi</i> (Bouché, 1834).....	<i>Rubus</i>	<i>heraclei</i> (Heddicke, 1923) <b>comb. n.</b> .....	<i>Heracleum</i>
<i>mayri</i> Reinhart, 1876.....	<i>Potentilla</i>	<i>lampsanae</i> Perris, 1873.....	<i>Lampsana</i>
<b>HEDICKIANA</b> <b>gen. n.</b>		<i>lusitanica</i> Tavares, 1904.....	<i>Crepis</i>
<i>levantina</i> (Heddicke, 1928) <b>comb. n.</b> .....	<i>Salvia</i>	<i>crepidos</i> (Weidner, 1968) <b>syn. n.</b>	
<b>IRAELLA</b> <b>gen. n.</b>		<i>phoenixopodos</i> Mayr, 1882.....	<i>Lactuca</i>
<i>luteipes</i> (Thomson, 1877).....	<i>Papaver</i>	<i>pilicornis</i> (Thomson, 1877).....	?
<i>papaveris</i> Kieffer in Goury and Gignon, 1905		<i>rufipes</i> Ionescu and Roman, 1959.....	<i>Crepis</i>
<b>ISOCOLUS</b> Förster, 1869		<i>sonchi</i> (Steffani, 1900).....	<i>Sonchus</i>
<i>fitchii</i> (Kieffer, 1898).....	<i>Centaurea</i>	<i>urospermi</i> Kieffer, 1901.....	<i>Urospermum</i>
<i>jaceae</i> (Schenck, 1863).....	<i>Centaurea</i>	<b>XESTOPHANES</b> Förster, 1869	
<i>lichtensteini</i> (Mayr, 1882) <b>comb. n.</b> .....	<i>Centaurea</i>	<i>brevitarsis</i> (Thomson, 1877).....	<i>Potentilla</i>
		<i>potentillae</i> (Retzius in Degeer, 1873).....	<i>Potentilla</i>
		<i>foveicollis</i> (Thomson, 1877)	
		<i>abreviatus</i> (Thomson, 1877)	



Figs. 1-15. Cynipidae. 1-3, Pronotum, dorsal view. 1, *Aylax papaveris*. 2, *Aulacidea hieraci*. 3, *Cynips divisa* ♀. 4, Scutellum, *Pediaspis aceris*. 5, Gula, *Perichstus brandtii*. 6-7, *Ceroptres*. 6, Gaster, lateral (♀). 7, Head, frontal view. 8, Gula, *Isocolus*. 9, Gaster, lateral, *Synergus thicinus* (♀). 10, Gaster, lateral, *Ceccoma valerianellae*. (♀). 11-13, *Eschatocerus*. 11, Mesoscutum and scutellum, dorsal view. 12, Forewing (hairs omitted) 13, Head, dorsal view. 14-15, *Diplolepis rosae*. 14, Mesopleuron. 15, Gaster, lateral (♀).

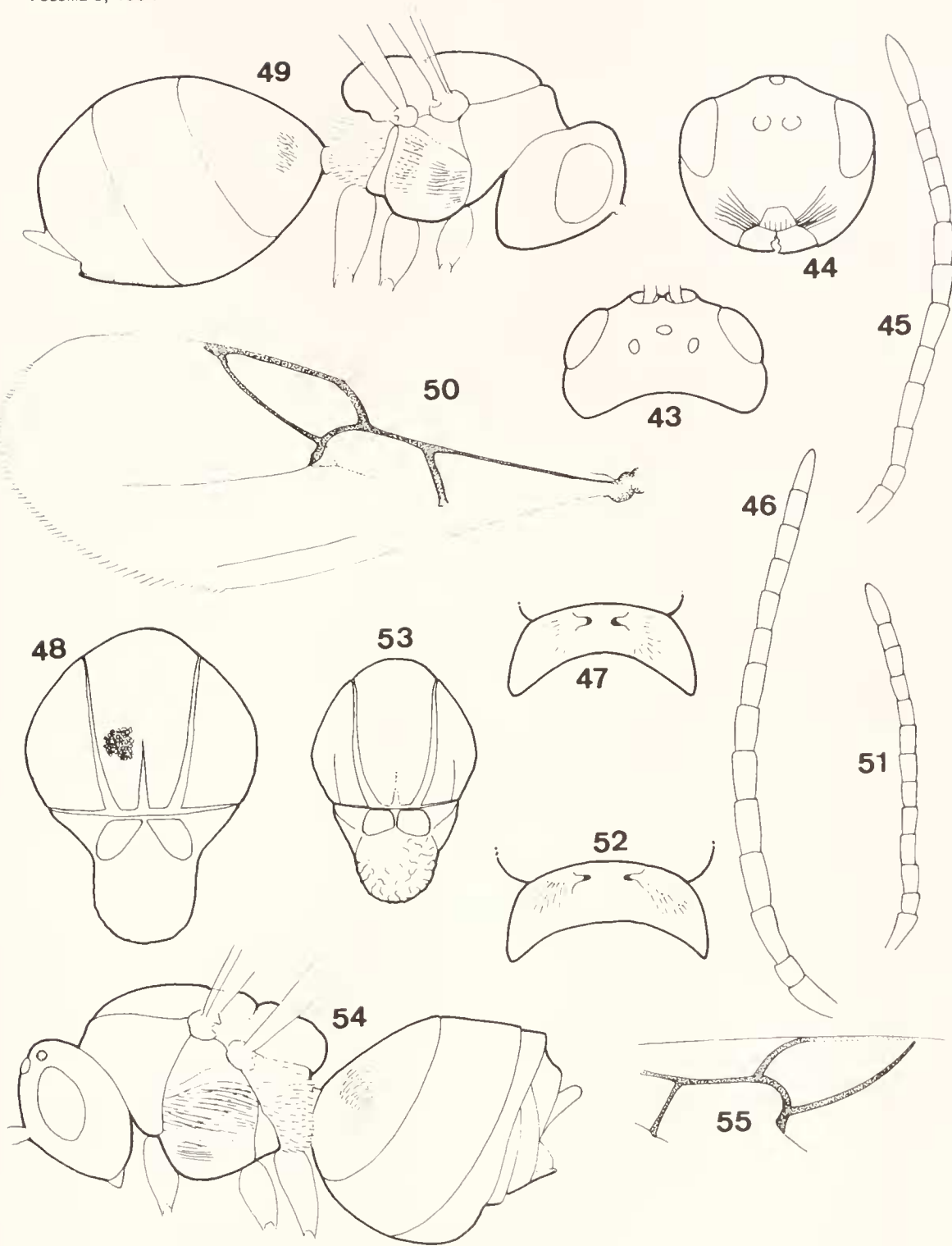


Figs. 16-34. Aylacini. 16-20, Tarsal claws. 16, *Duastrophus rubi* (lund). 17, *Xestophanes potentillae* (front). 18, *X. potentillae* (hind). 19, *Barbotinia oraniensis* (hind). 20, *Isocolus lichtensteini* (hind). 21, Forewing, *X. potentillae*. 22, Forewing, *D. rubi*. 23-27, *Iraella luteipes* (♀). 23, Pronotum. 24, Head and thorax, lateral. 25, Forewing. 26, Head, frontal view. 27, Antenna, first segments. 28, Mesopleuron, *Phanacis caulicola*. 29-30, *Ceconia valerianellae* ♂. 29, Head, frontal view. 30, Forewing. 31-33, *Liposthenus glechomae* ♀. 31, Head and thorax, lateral. 32, Mesoscutum and scutellum, dorsal view. 33, Antenna, first segments. 34, Forewing *Aylax papaveris* (♀).

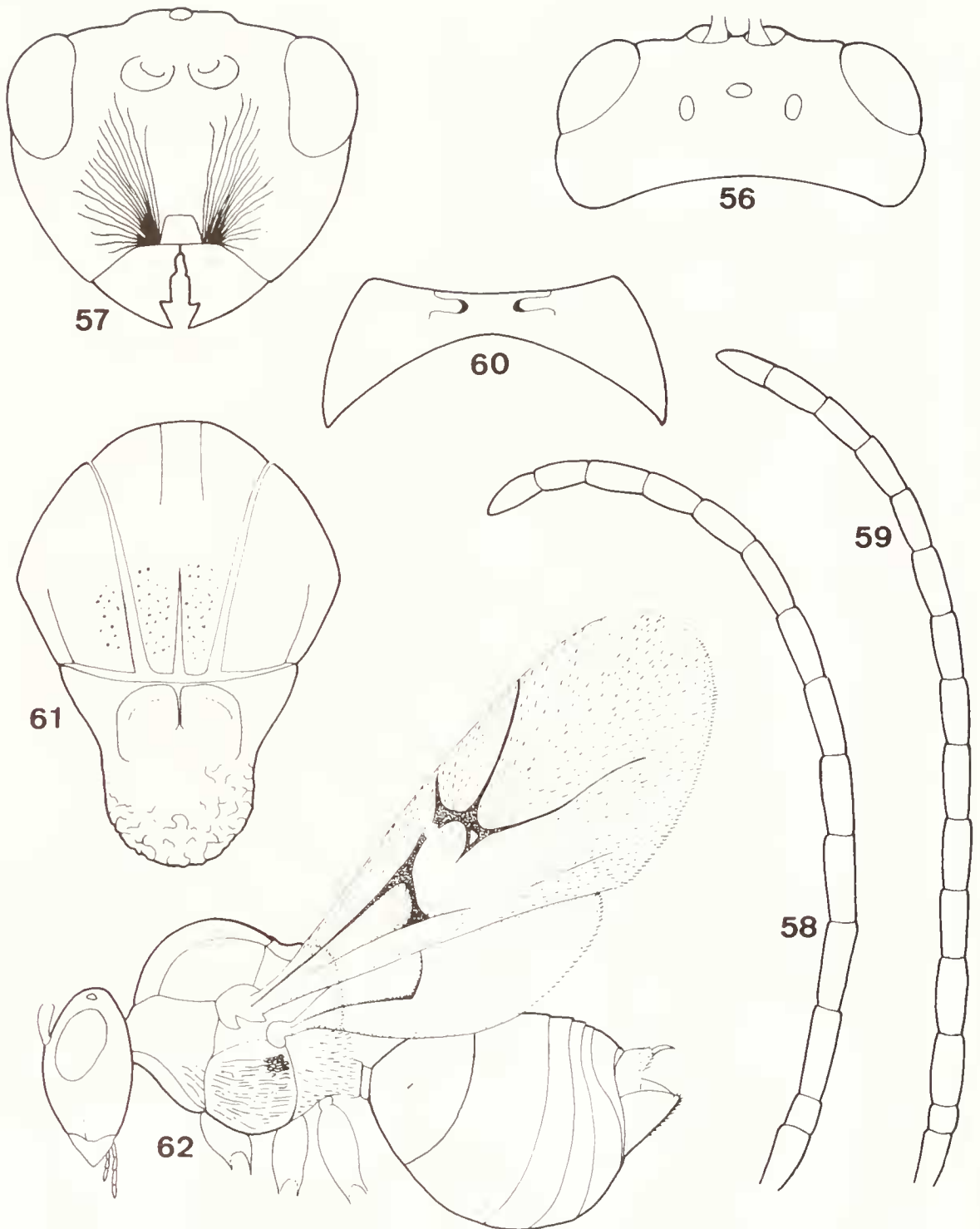


Figs. 35-42. *Antistrophus pisum*. 35, Head, dorsal view. 36, Head, frontal view. 37, Antenna (♀). 38, Antenna (♂). 39, Pronotum. 40, Mesoscutum and scutellum. 41, Body, lateral. 42, Forewing (hairs omitted).

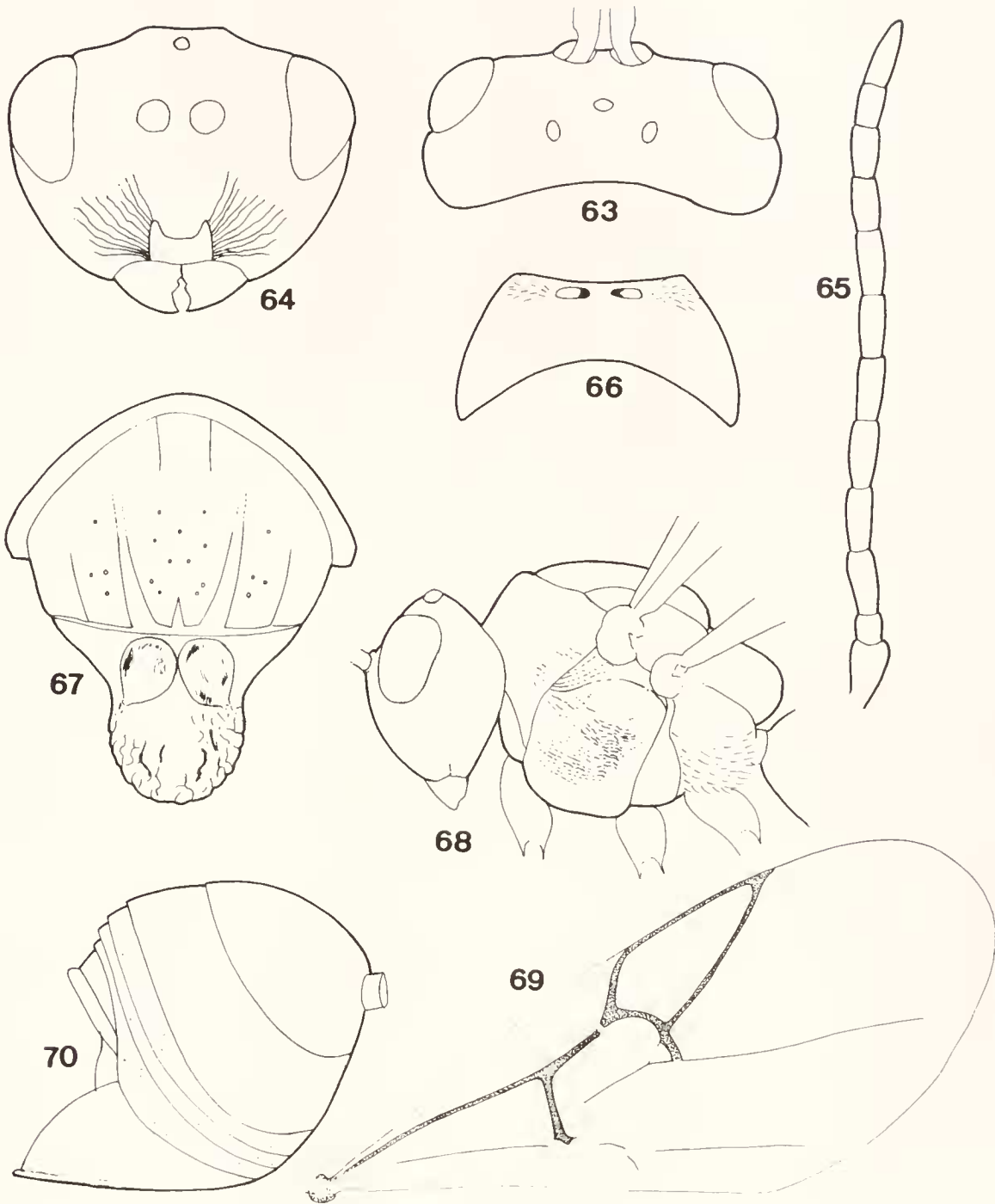




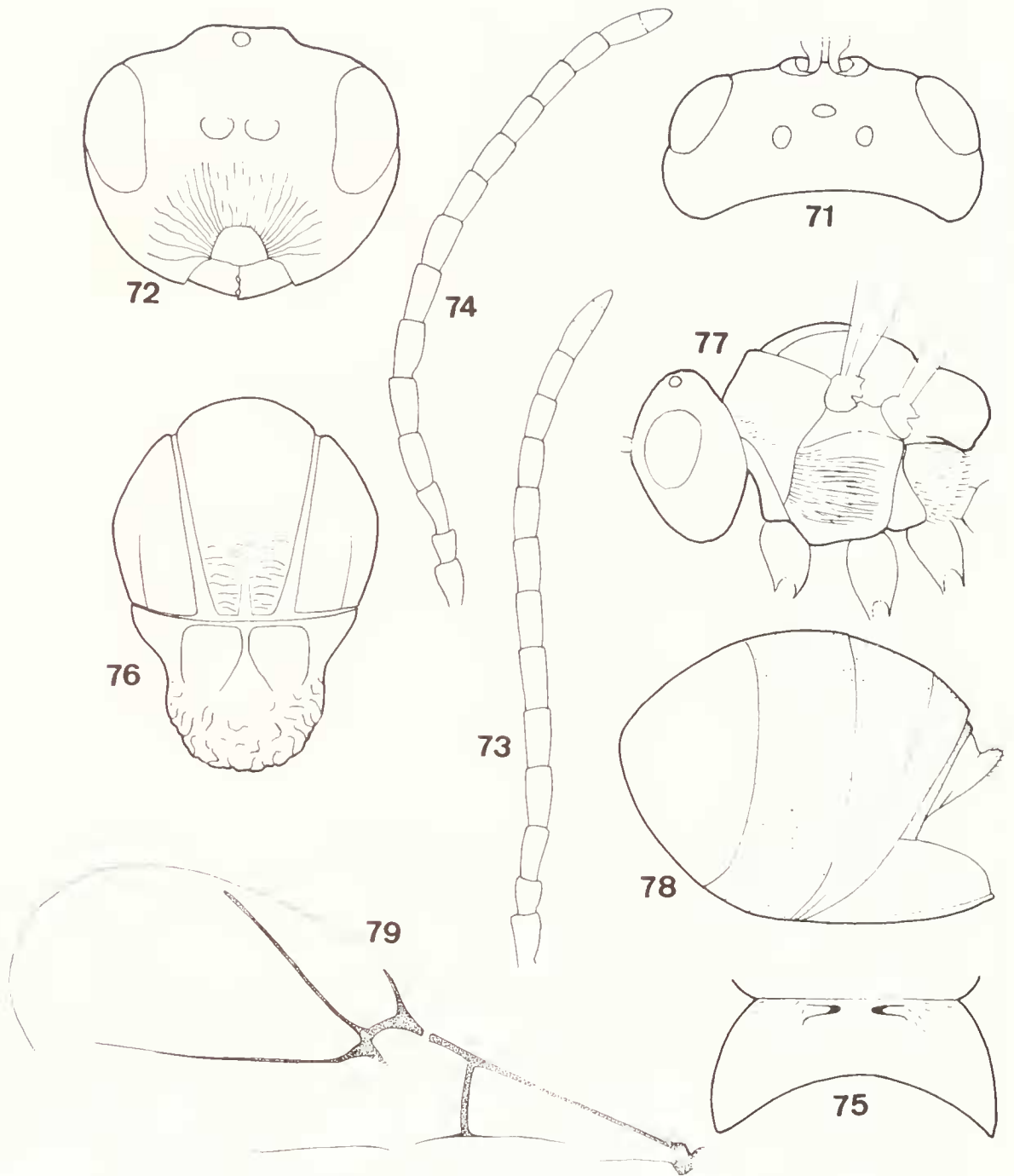
Figs. 43-55. *Aulacidea*. 43-50, *Aulacidea harringtoni*. 43, Head, dorsal view. 44, Head, frontal view. 45, Antenna (♀). 46, Antenna (♀). 47, Pronotum. 48, Mesoscutum and scutellum. 49, Body, lateral. 50, Forewing (hairs omitted). 51-55, *Aulacidea kernerii*. 51, Antenna (♀). 52, Pronotum. 53, Mesoscutum and scutellum. 54, Body, lateral. 55, Radial cell of forewing (hairs omitted).



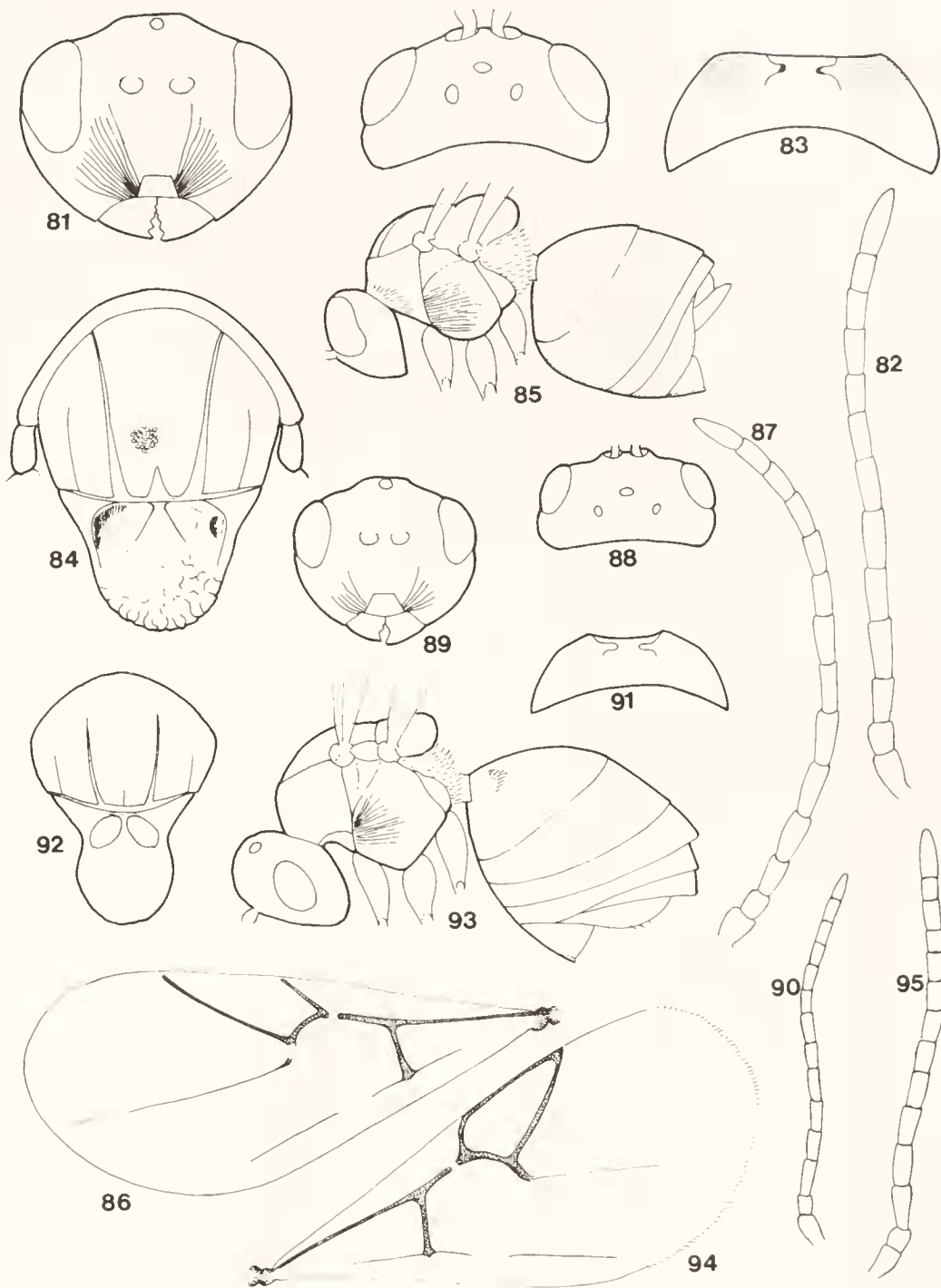
Figs. 56-62. *Barbotinia oraniensis*. 56, Head, dorsal view. 57, Head, frontal view. 58, Antenna (♀). 59, Antenna (♂). 60, Pronotum. 61, Mesoscutum and scutellum. 62, Body and wings.



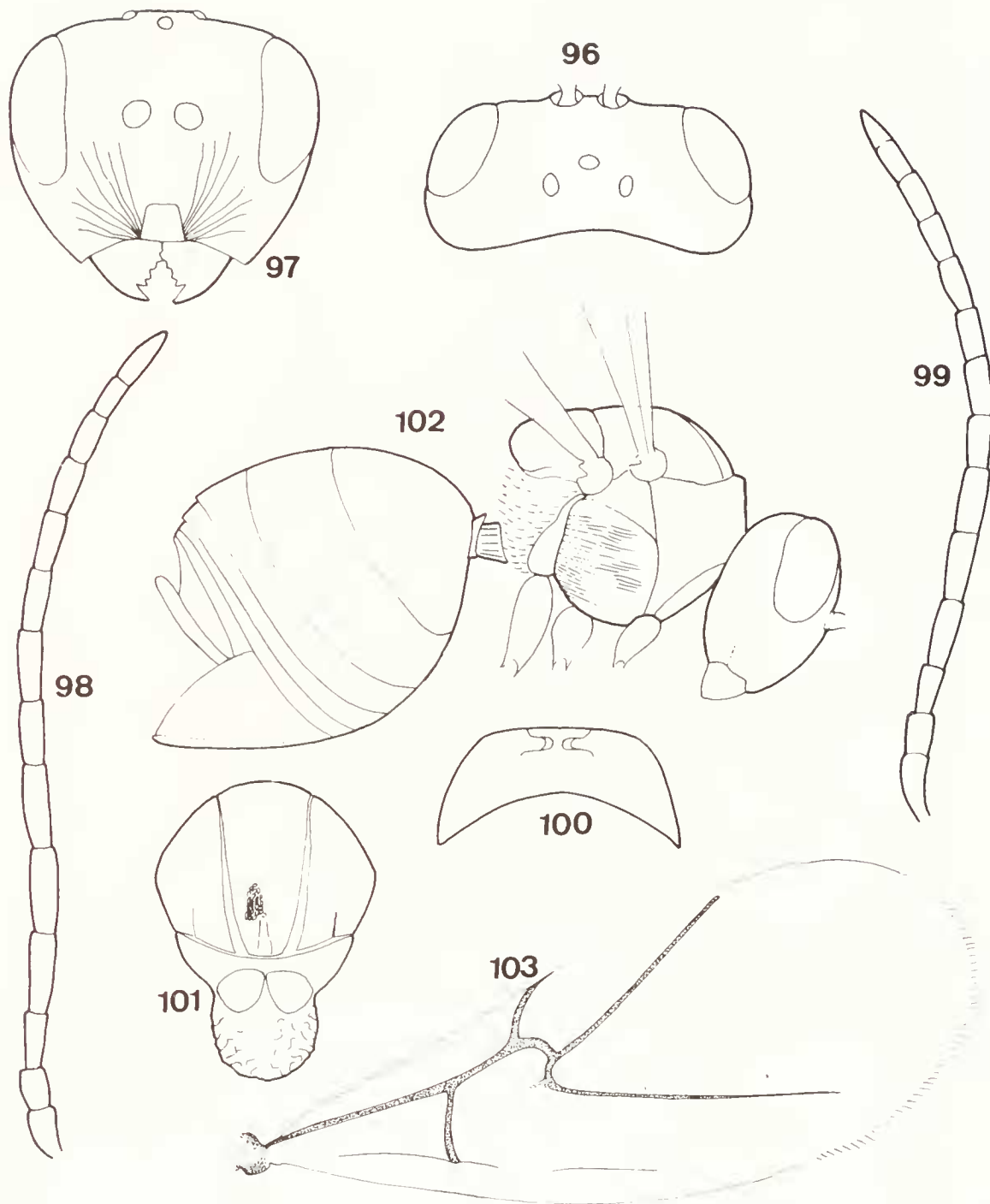
Figs. 63-70. *Hedickiana levantina*. 63, Head, dorsal view. 64, Head, frontal view. 65, Antenna (♀). 66, Pronotum. 67, Mesoscutum and Scutellum. 68, Mesopleuron. 69, Forewing (hairs omitted). 70, Gaster, lateral.



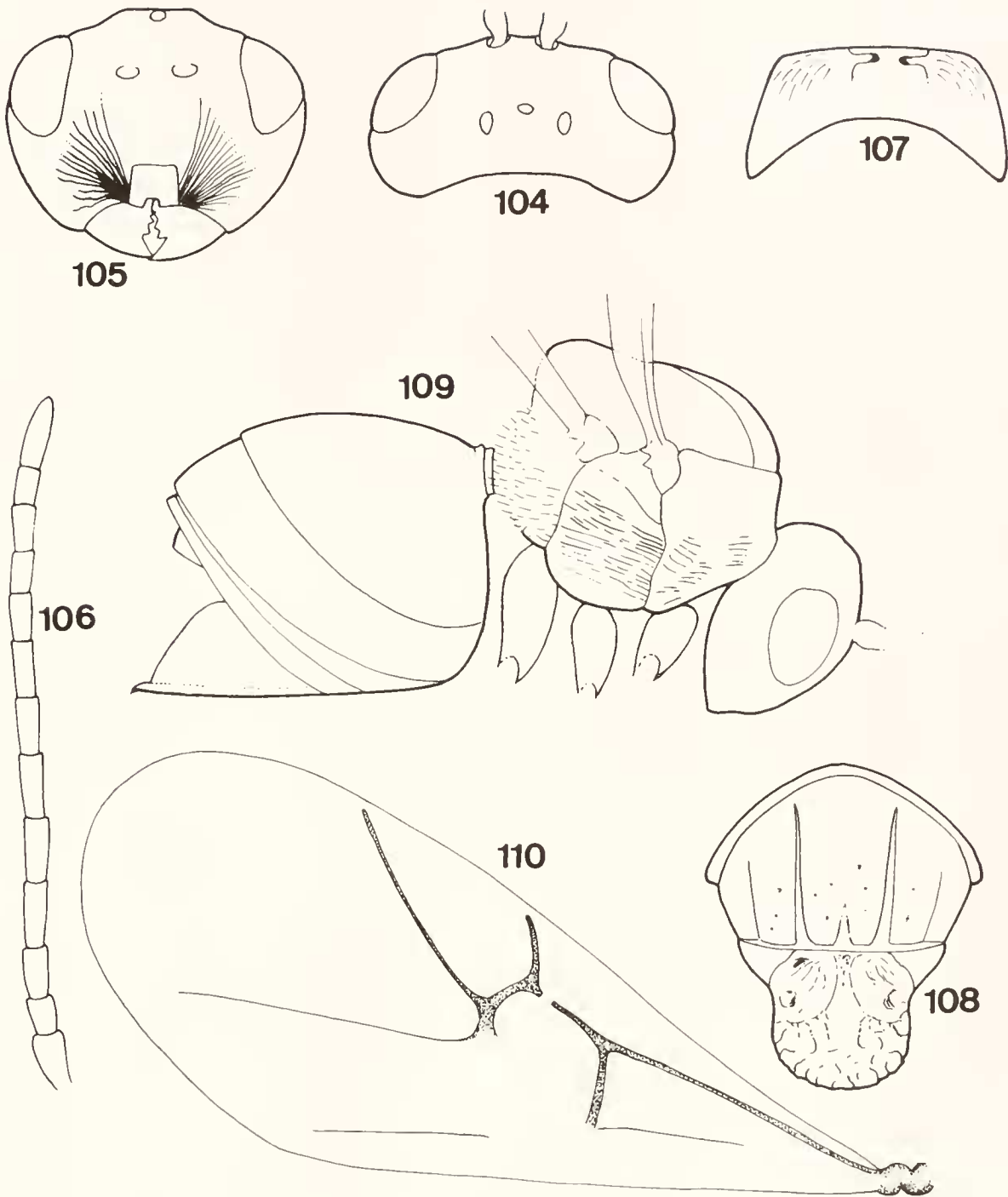
Figs 71-79. *Isocolus scabiosae*. 71, Head, dorsal view. 72, Head, frontal view. 73, Antenna (♀). 74, Antenna (♂). 75, Pronotum. 76, Mesoscutum and scutellum. 77, Mesopleuron. 78, Gaster, lateral. 79, Forewing (hairs omitted).



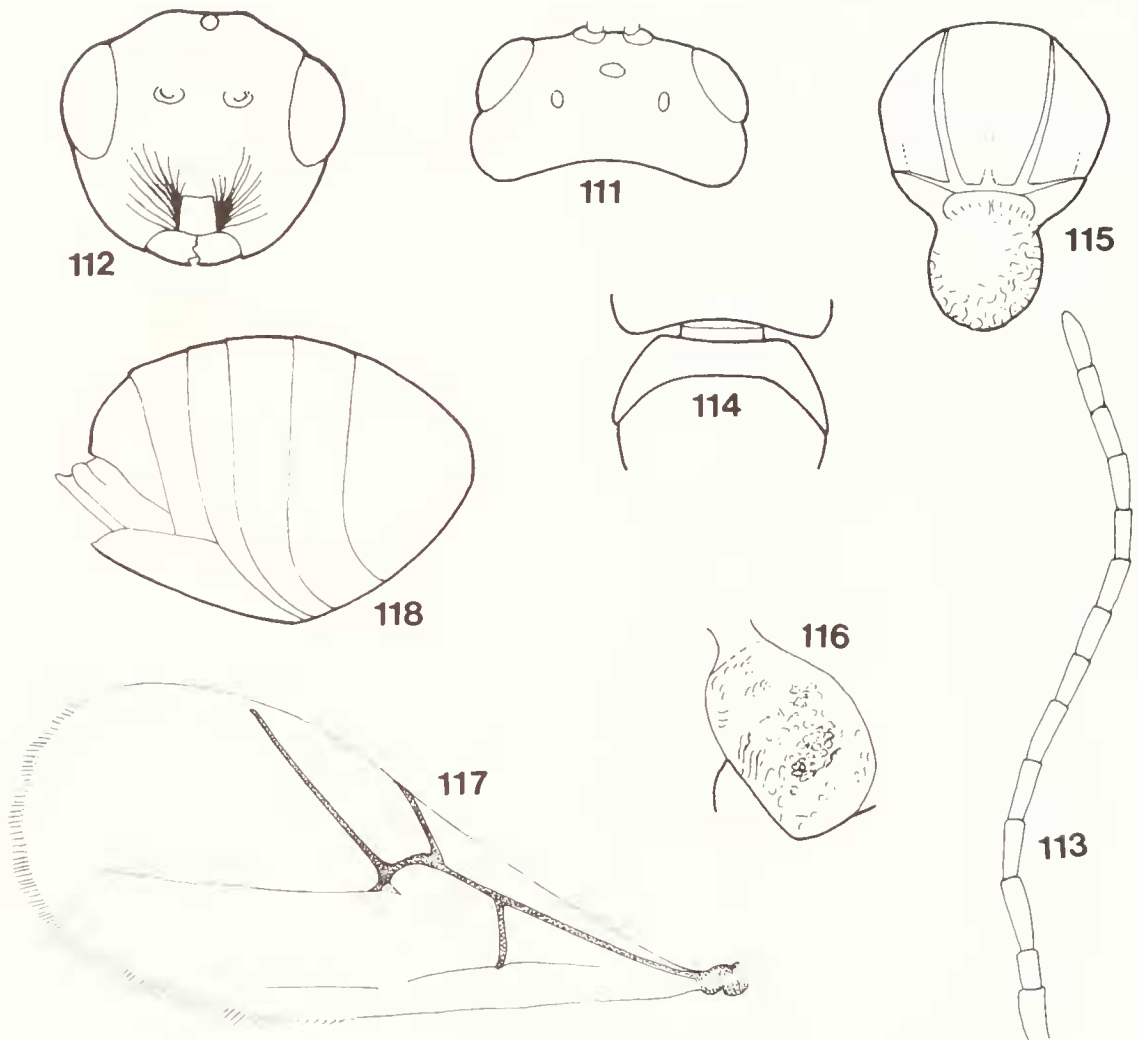
Figs. 80-95. *Isocolus* and *Aulacidea*. 80-87, *Isocolus serratulae*. 80, Head, dorsal view. 81, Head, frontal view. 82, Antenna (♀). 83, Pronotum. 84, Mesoscutum and scutellum. 85, Body, lateral. 86, Forewing (hairs omitted). 87, Antenna (♂). 88-95, *Aulacidea scorzonerae*. 88, Head, dorsal view. 89, Head, frontal view. 90, Antenna (♀). 91, Pronotum. 92, Mesoscutum and scutellum. 93, Body, lateral. 94, Forewing (hairs omitted). 95, Antenna (♂).



Figs. 96-103. *Neaylax salviae*. 96, Head, dorsal view. 97, Head, frontal view. 98, Antenna (♀). 99, Antenna (♀). 100, Pronotum. 101, Mesoscutum and scutellum. 102, Body, lateral. 103, Forewing (hairs omitted).



Figs. 104-110. *Rhodus oriundus*. 104, Head, dorsal view. 105, Head, frontal view. 106, Antenna (♀). 107, Pronotum. 108, Mesoscutum and scutellum. 109, Body, lateral. 110, Forewing (hairs omitted).



Figs. 111-118. *Timaspis heraclei*. 111, Head, dorsal view 112, Head, frontal view. 113, Antenna (♀). 114, Pronotum, 115, Mesoscutum and scutellum. 116, Mesopleuron. 117, Forewing (hairs omitted). 118, Gaster, lateral.